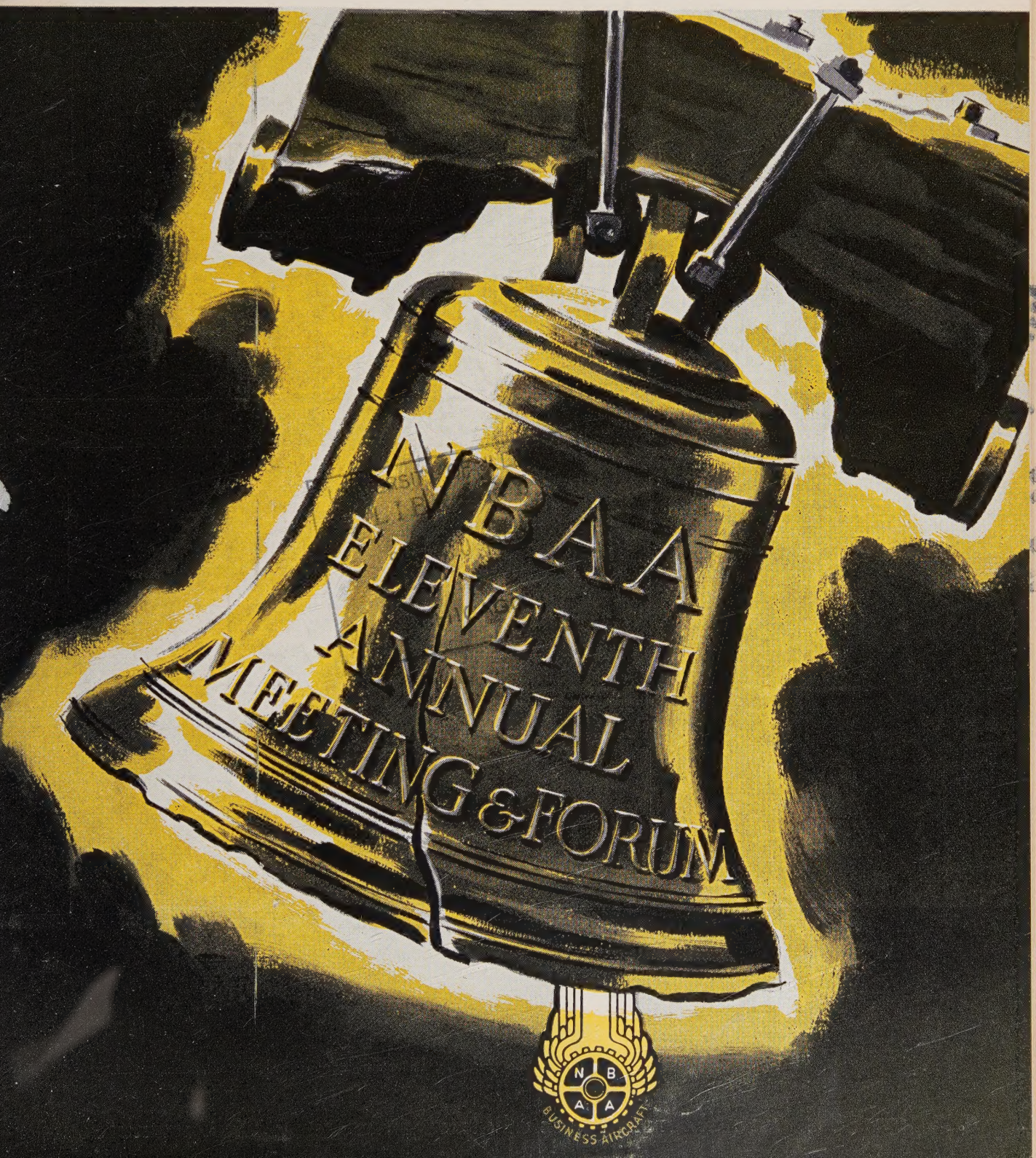
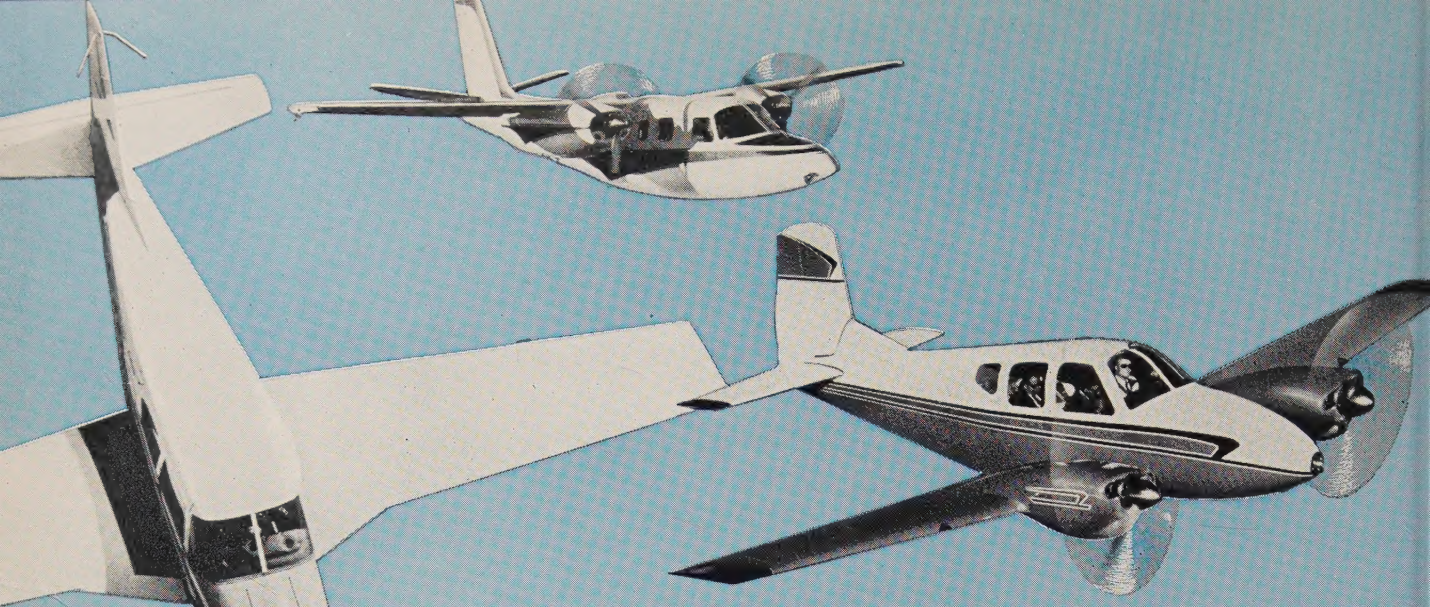
OCTOBER 1958

Skyways

FOR BUSINESS

The official publication of the National Business Aircraft Association





For the most complete line of engines from 115-520 hp..

For more horsepower/pound...it'

Lycoming

RECIPROCATING ENGINE MODEL	# CYL	FUEL GRADE	TAKE-OFF RATING (hp)	WEIGHT (lbs)
O-235-C1	4	80/87	115	236
O-290-D2B	4	80/87	140	264
O-320-A1A	4	80/87	150	272
O-320-B1A	4	91/96	160	278
O-340-A1A	4	91/96	170	280
O-360-A1A	4	91/96	180	285
O-435-A	6	80/87	190	392
O-540-A1A	6	91/96	250	396
VO-435-A1D	6	80/87	260	390
GO-435-C2B2	6	80/87	260	430
GO-480-B1A6	6	80/87	270	432
GO-480-G1B6	6	100/130	295	464
GO-480-G2D6	6	100/130	295	442
VO-540-A1A	6	80/87	310	435
GSO-480-B1A6	6	100/130	340	498
SO-580-A1B	8	100/130	400	578
GSO-720	8	100/130	520	664

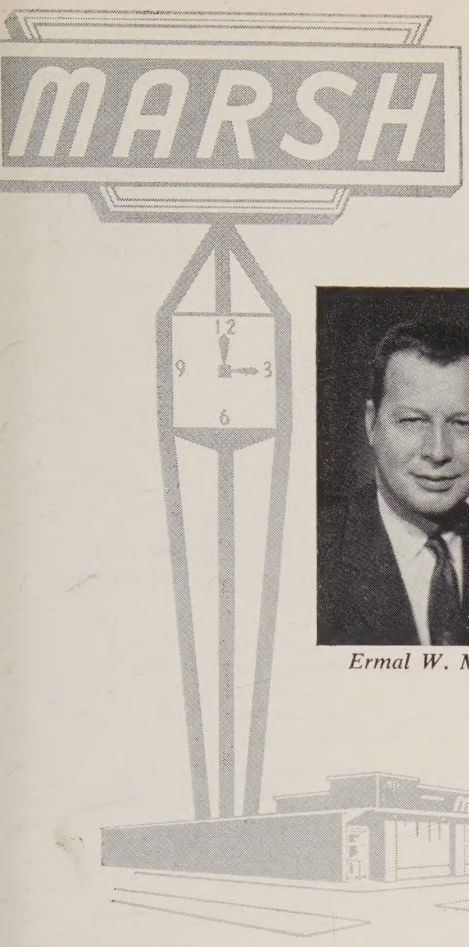
For further information on Lycoming's complete line of power plants, write to: Lycoming Division, Avco Manufacturing Corporation, Williamsport, Pa.

1908-1958 FIFTY YEARS OF POWER

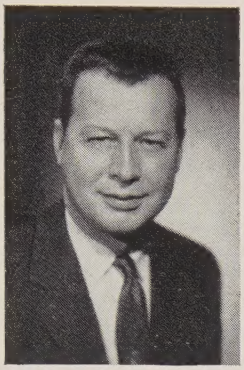
Lycoming

A Division of *Avco* Manufacturing Corporation | Stratford, Conn., Williamsport, Pa.

...powering more different types of aircraft than any other manufacturer



PIPER Apache aids expansion of fast-growing food chain



Ermal W. Marsh

A Piper Apache, twin engine executive transport, has been a big factor in the phenomenal growth of Marsh Foodliners, Inc., Midwest supermarket chain which last year grossed $60,000,000.

Four years ago Ermal W. Marsh, president of Marsh Foodliners, learned to fly a single engine Piper Tri-Pacer in order to handle his business travel more efficiently and pleasantly. In 1956 he earned his multi-engine pilot rating and bought an Apache. "We've continued to expand so fast we may soon have to become a two-Apache company," says growth-minded Mr. Marsh.

Each year since he started to travel by company plane, Mr. Marsh has seen his company grow 30 to 50 per cent over the previous year. The Foodliner chain now includes 31 supermarkets in Indiana and Ohio as well as 10 in South Carolina, some 600 miles distant from the general plant headquarters in Yorktown, Indiana.

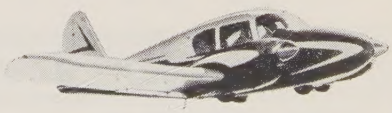
"The Apache is ideally suited to our needs," says Mr. Marsh, "since it lets us land at every type of airport, from large city terminals to small fields convenient to our outlying stores. In addition to visiting stores I use the plane to attend conventions and business meetings and for aerial study of site locations for our prospective markets. There are other pilots in the company, too, and they use the plane for a variety of business trips. Our Apache gives us a travel flexibility we like very much."

rmal W. Marsh, 47-year old president of Marsh oodliners, Inc., at the controls of his Piper Apache.

HAVE YOU INVESTIGATED THE ADVANTAGES THE Apache OFFERS YOUR BUSINESS?

Today, well over one thousand progressive business firms, large and small, benefit from fast, convenient travel by Piper Apache —by far, America's most popular twin engine executive transport. This superlatively comfortable airplane carries four or five people at better than 170 mph. The Apache, in volume production, provides night and day transportation on your own schedule for an investment some $15,000 less than for any other new executive twin available. An investigation of what the Apache could do for your company in the form of increased executive efficiency and productivity could prove enlightening. Your Piper distributor will be glad to demonstrate, or write for Apache brochure and operating data, Dept. 10-K.

PIPER AIRCRAFT CORPORATION
Lock Haven, Pennsylvania



Capital-conserving lease and finance plans available.

MORE PEOPLE HAVE BOUGHT PIPERS THAN ANY OTHER PLANE IN THE WORLD

Circle No. 12 on Reader Service Card

FOR FAST SHIPMENT OF

ENGINE ACCESSORIES

AIRFRAME COMPONENTS

factory authorized distributors for

Delco-Remy

STARTERS GENERATORS REGULATORS

WINSLOW
Full-Flow Oil Filters

NEW DEPARTURE BALL BEARINGS

PROMPT DELIVERY
FROM ONE OF AMERICA'S LARGEST STOCKS OF FACTORY NEW OR CERTIFIED REBUILT UNITS

Accumulators	Inverters
Actuators	Lights
Amplifiers	Magnetos
Brakes	Motors
Carburetors	Pumps
Controls	Regulators
Coolers	Relays
Cylinders	Shock Absorbers
De-Icers	Starters
Filters	Switches
Generators	Valves
Governors	Vibrators
Heaters	Wheels
Ign. Harness	Windsh. Wprs.

WRITE FOR PRICE LIST AND LITERATURE

UNIPAK
AVIATION CORPORATION
24-68 47th St., L.I. City 3, N.Y., RAvenswood 1-7300

Circle No. 16 on Reader Service Card

OCTOBER, 1958

Skyways FOR BUSINESS

The official publication of the National Busniess Aircraft Association

COVER: At a time when America and the Free World stands alert to a new threat against the freedoms so arduously won in 1776 and since, the importance of American industry in forging the sword of those freedoms is greater than ever before in our history. Business aviation, symbolized by NBAA, has strengthened industry's arm should ever the Liberty Bell ring out again to muster freedom's forces.

Aviation Roundup . . 4
NBAA Dir. Notes . . . 11
Air Your Views 10
Editorial 13

A Matter Of Faith 15
Leading airplane manufacturers give their views on the present and future of business aviation.
Facts - VS - Fancy 37
Interesting examples of business use dispel old notions of the use of airplanes.

Grit Printing Co. 38
Eastman Oil Well Survey Co. 41
Sears, Roebuck . . 42
Sidon Co. 44
Lamarre 46
C. N. Flagg 52
Martin Caidin 39
Bass River Bank . . 43
Banco Credito . . . 46
Albritton Eng'rg. . . 49
Dean, Witter & Co. 54

Rise and Fall of Aircraft Values . . . . . R. K. Polson 57
VPM - New Measure of Aircraft Use . . . . . J. Herrick 60

NAVICOM
Utica Airspace Apportioned 62
CAA Lists Pilot Jobs 62
ADC Radar to Assume ARTC Role 70
Fluorescent Color Layouts 66

Suite 344 70
Safety Digest 74
Business Hangar . . . 88
Canadian Reports . . 72
Helicopters 76
Nu-Avi-Quip 90
Law Behind The Skyways 96

EDITOR & PUBLISHER
LOIS HENRY
MANAGING EDITOR
Arthur E. Graham

EDITORIAL
Lindy Boyes, Associate
Joseph Bush
R. J. Childerhose, Canada.

CONTRIBUTING EDITORS
Dick Groux, Washington, D. C.
Herb Fisher, Flight Evaluations
Robert K. Polson

BUSINESS PRODUCTION Manager
Stanley M. Cook

ART
Francis J. Danielo

READER SERVICE CIRCULATION
Judith B. Maze

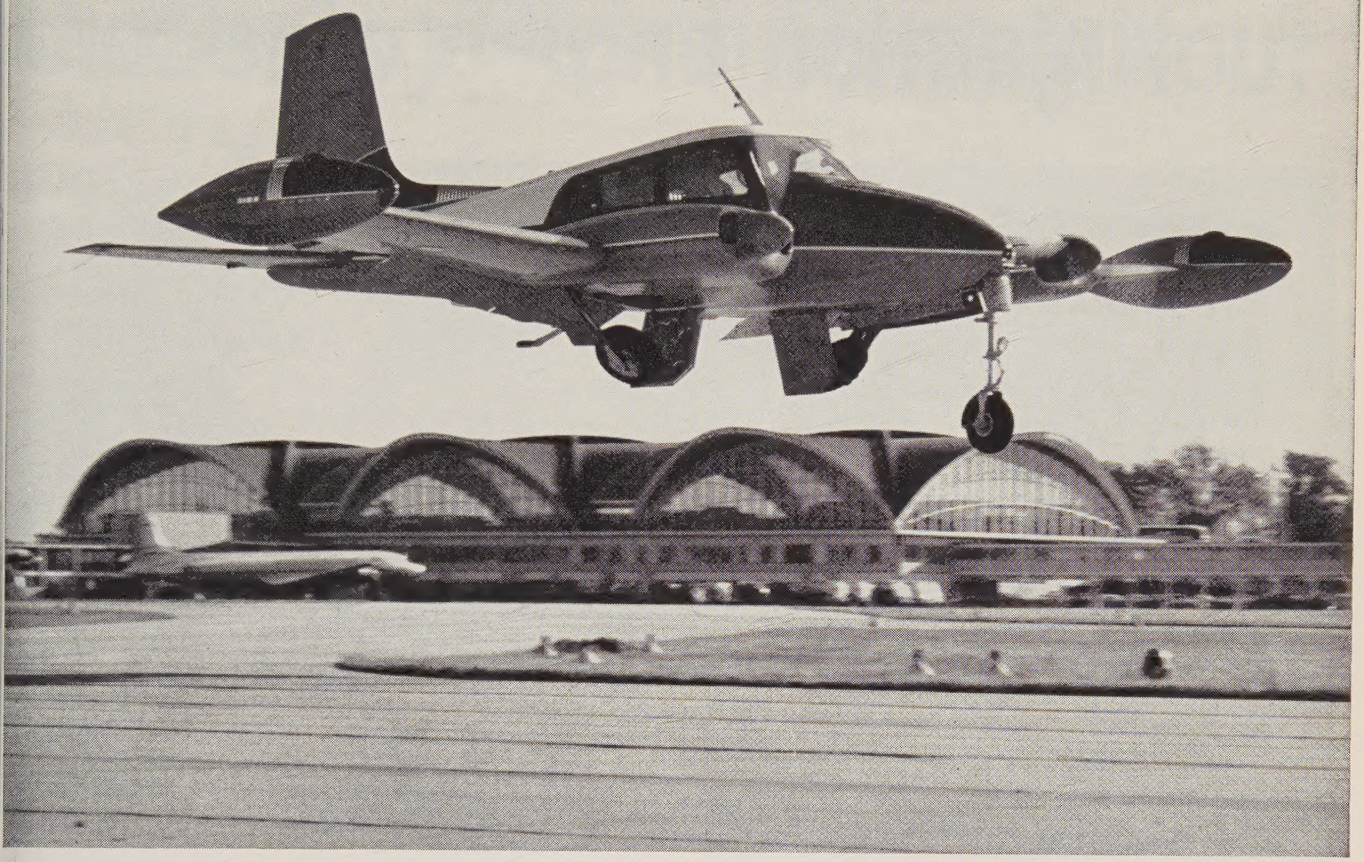
ADVERTISING OFFICE: 425 Fourth Ave., N. Y. 16, N. Y. Tel. MU 9-2684
EAST COAST—425 Fourth Ave., N. Y. 16, N. Y., Tel. MU 9-2684
MIDWEST—Wm. A. Cook, 161 E. Grand Ave., Chicago 11, Ill., Tel. WH 4-2260
WEST COAST—Boyd B. Garrigan,
5478 Wilshire Blvd., Los Angeles 36, Calif., Tel. WE 8-4411
SOUTHWEST—James H. Cash, 818 Exchange Bk. Bldg.,
Dallas 35, Texas. Tel. FL 1-4523

BPA Member Business Publications Audit of Circulation, Inc.

VOLUME 17, NUMBER 10

SKYWAYS is published monthly by Henry Publishing Co., Emmett Street, Bristol, Conn.; Editorial and Executive Offices: 425 Fourth Ave., New York 16, N. Y. Printed in the U.S.A. Single copy; 50c. Subscription Prices. U. S. Possessions, Canada and Pan Am. Union $9.00 for 3 years, $7.00 for 2 years, $4.00 for 1 year all other countries add $1.50 per year for postage. Please give title, position and company connection when subscribing. Six weeks required for address changes (give both old and new). Manuscripts, drawings, other material must be accompanied by stamped, self-addressed envelope. SKYWAYS is not responsible for unsolicited materials. Accepted as controlled circulation publication at Bristol, Conn.
Copyright 1958 by Henry Publishing Company. The following publications are combined with SKYWAYS: Air News, Flying Sportsman and Airways Traveler. All rights to these names reserved by Henry Publishing Co.

MEET THE WBAALT*! NEW CESSNA 310B



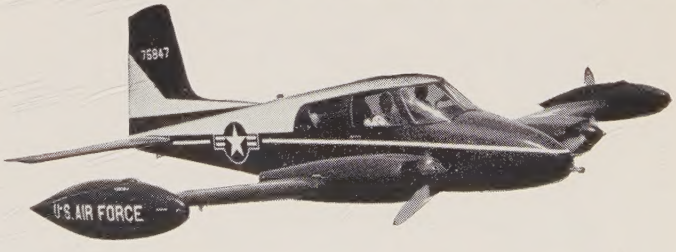
NEW, FASTER CRUISING SPEED

... and faster single-engine climb than any other business twin

Look at the new, higher performance you get from the world's best all-around light twin! Cruising speed: 213 m.p.h., 70% horsepower at 8,000 feet ... high-speed power to climb 415 feet per minute on *one* engine while fully loaded with 5 passengers. It's the great new Cessna 310B!

More advanced design is a major reason for the 310B's top performance. Its tip-tanks channel air flow, increase control as well as speed. Its flat engine nacelles are a mere 21 inches high, reduce air resistance, actually add lift. Retractable landing gear and split-type flaps, broad-span tail group, and 69% of weight below and forward of passengers increase speed, stability, safety. Also highly important: the 310B's two performance-proven, 240-h.p. Continental engines. More advanced design shows up again in Cessna's new, quieter, larger interior—the revolutionary "Comfort-Sealed" cabin. Price of the new Cessna 310B: $59,950 f.a.f. Wichita. Call your Cessna dealer (Yellow Pages of phone book) or write CESSNA AIRCRAFT COMPANY, Dept. S-30, Wichita, Kan. Inquire about Cessna Lease Plans.

**World's Best All-Around Light Twin—Winner of U.S.A.F. Light-Twin Competition*



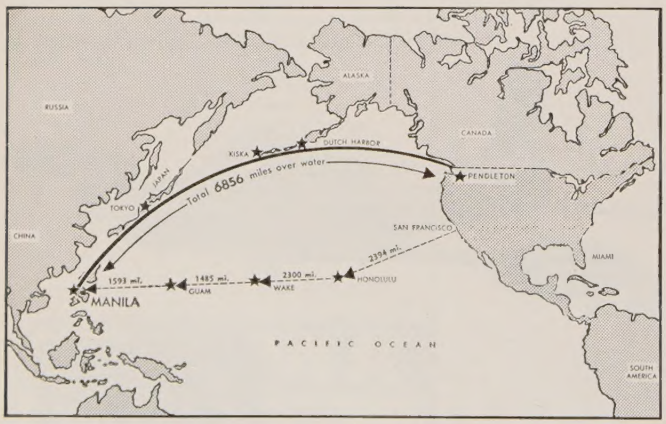
Cessna®

Circle No. 1 on Reader Service Card

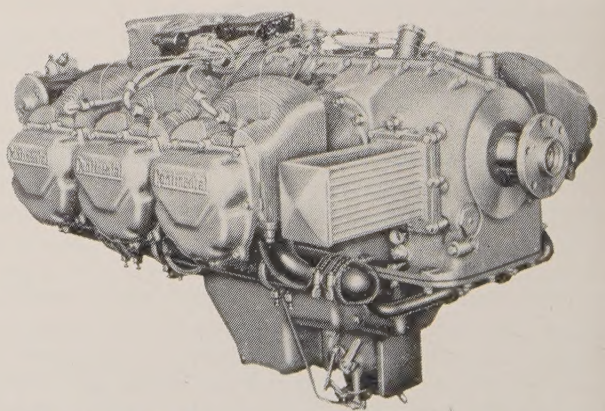
Capt. "Pat" Boling sets light-plane

New "All Weather" Champion fuel-injection engine of record-

Record-breaking Bonanza used dry ice to chill fuel, permitting about 28 extra gallons to be carried. With special tanks added, aircraft carried a total of 402 gallons. "All Weather" Champion RHD 39N Spark Plugs fired the fuel.



Map shows route from Manila to Pendleton, Oregon, a great-circle distance of 6,856 miles. Actual mileage flown was 7,090. Trip was longest nonmilitary overwater flight in history, beat previous light-plane distance mark by 1,899 miles.



Continental IO-470-C is standard powerplant of new J35 Bonanza, first single-engine four-place business plane to have fuel injection. Its fuel-utilization efficiency with a heavy load is unexcelled.

CHAMPION SPARK PLUG

distance record – 6856 miles!

Spark Plugs power Continental shattering Beech Bonanza

New Champion type, used on this historic hop, now offers light aircraft the benefit of moisture protection and anti-fouling features developed for airlines

On July 30, Captain "Pat" Boling, United Airlines pilot, lifted a heavily loaded Beechcraft Bonanza off a Manila runway and headed northeast over the Pacific. He touched down in Pendleton, Oregon, 46 hours and 6,856 miles later. The flight beat by 1,899 miles a record that had stood for nine years.

This flight was no stunt. It was something Capt. Boling had been planning ever since the previous mark of 4,957 miles was set (also in a Bonanza with a Continental engine).

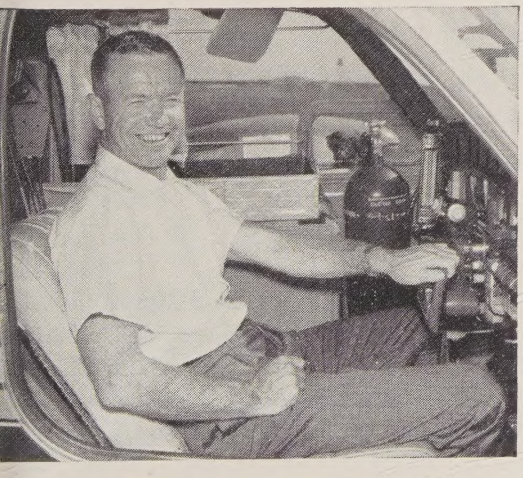
Beech furnished the plane and prepared it for the flight, which was called a "demonstration of ruggedness, reliability and efficiency," by Jack Gaty, Vice President-General Manager of Beech Aircraft Corporation. Before the new record was set, Gaty summed up the reasons for Beech's "sponsorship" of this flight in these words: "That record (set by a Beech Bonanza in 1949) still stands without any effective challenge. However, it does not represent the true efficiency of the present-day Bonanza."

The new record-setting flight was made possible only by the great increase in the efficiency of both the airplane and the Continental fuel-injection engine, Gaty stated.

Beech engineers who readied the Bonanza for the record flight made only such modifications as were needed to add the desired range and to satisfy requirements for long distance and overwater flying. One of the important steps the Beech engineers took to increase engine efficiency was to install the new "All Weather" RHD39N Champion Spark Plugs in the Continental IO-470-C engine.

These new "All Weather" Champions for light aircraft have a ¾"-20 shielding barrel connection and, except for the fact that they are short reach, are identical in design and performance to the Champions used by every major airline in the world. This ¾"-20 design was developed for high-altitude and all-weather flying and is completely moistureproof. These new Champions provide greater protection against flashover, and have improved anti-fouling characteristics due to improved bore clearance for better scavenging.

The new line of "All Weather" Champions, performance-proved on this record flight, are now available for almost all light aircraft. Why not give your aircraft the ignition advantages of Champion "All Weather" performance?



Distance king "Pat" Boling, a United Airlines Captain, left parachute behind to save 25 pounds, ate light snacks of cookies, crackers, cheese, made coffee in plug-in "hot cup" during the 46-hour flight.

DEPENDABLE CHAMPION SPARK PLUGS

Special features of new Champion short-reach RHD 39N "All Weather" plug for light aircraft:

Moistureproof construction eliminates flashover

•

Improved terminal connection provides greater insulation value

•

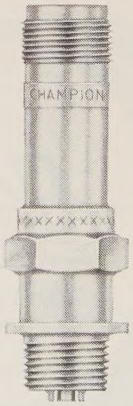
One-piece Ceramic insulator

•

Glass center electrode seal eliminates gas leakage

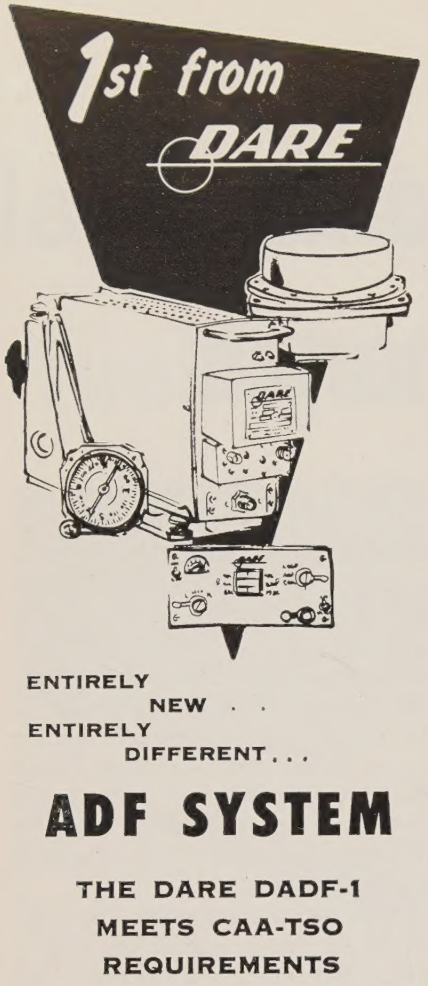
•

Revised firing end improves anti-fouling



COMPANY • TOLEDO 1, OHIO

Circle No. 17 on Reader Service Card



ENTIRELY NEW . .
ENTIRELY DIFFERENT . . .

ADF SYSTEM

THE DARE DADF-1 MEETS CAA-TSO REQUIREMENTS

- **Lighter Weight**—18.75 lbs. complete
- **Lower Cost**
- **Lower Current Drain**—3.0 amps No separate power supply
- **Smaller Size**—Tuner Amplifier fits short 3/8 ATR Rack
- **Rotatable Azimuth Indicator,** with 5° increments and N-E-W-S cardinal points
- **Pilot-Engineered** back-lighted remote control for easiest use
- **Entirely new,** super-sensitive tube-and-transistor circuit

See your DARE Distributor, or Write today, for complete literature

DARE
INC.
TROY, OHIO

Circle No. 18 on Reader Service Card

Aviation Roundup

"A BODY BLOW TO AIR SAFETY" was characterization by Senator Monroney of Presidential veto of Federal Airports Aid Bill. This action cuts off the program as of June 30th next year, unless Congress over-rides the veto or passes a very revised version next session. The veto, based on administration policy that airport users should bear larger share of airport costs, virtually halts the individual states' own fiscal aid programs until Federal long-range plans are finalized, says A. B. McMullen, Executive Director, NASAO.

★ ★ ★

WORLD'S FIRST VTOL AIRLINER, CARGO OR EXECUTIVE TRANSPORT will be built in this country by Kaman Aircraft Corp. under license from Fairey Aviation Ltd., England. The 48 passenger (or 12,000 lb cargo) craft can cruise at 185 mph with lower ton-mile costs than its counterpart, the pure helicopter, according to Kaman. Four 1,000-lb thrust rotor tip jets provide vertical lift through takeoff, landing and transition flight, while two 3,500 hp gas turbines drive the propellers for high speed level flight.

★ ★ ★

CAB VOTE TO INCREASE EMERGENCY OXYGEN FACILITIES on jet airline aircraft may presage regulation effecting all future civil turboprop or jet aircraft including corporation-operated equipment.

★ ★ ★

CHICAGO O'HARE INTERNATIONAL AIRPORT HYDRANT FUELING SYSTEM which will speed aircraft re-fueling from 60 ramp positions should ease service and gate problems with subsequent benefit to business aircraft.

★ ★ ★

EXPOSURE HAZARD IN SERVICE OF AIRBORNE RADAR has resulted in development of pocket size radiation detection device which gives both visual and aural warning. Intensity of exposure effects small neon bulb and creates variable signal in hearing aid type earpiece. Device developed by Douglas Aircraft Co.

★ ★ ★

BUSINESS FLYING PASSENGER FATALITY rate was 1.12 per 100,000 hours compared to scheduled air carrier passenger fatality rate of 3.78 per 100,000 hours, according to CAB's Bureau of Safety Analysis Div.

★ ★ ★

LYCOMING'S 250 HP ENGINE given popular reception since going on market. In four months more than 500 of the powerplants ordered. The 6-cylinder, direct drive engine is in Piper Comanche and Aero Commander 500.

★ ★ ★

WHO'S NEW . . . Frederick W. Gill, vice pres., charge of Aviation Div., U.S. Leasing Corp. . . . Sam F. Arn, vice pres. sales, PacAero . . . R. F. Deuel, safety and operations mgr, Hertz Taxiplane and Fly-Yourself System . . . Roger H. Leuba, mgr, aircraft operations, Dallas, Aeroquip. . . . Fred W. Schwier, gen'l sales mgr, Jackson Div., Aeroquip . . . Paul Morris, deputy director, Office of Airports, CAA . . . William B. Hawthorne, ass't to chief, Plans Office, Airways Modernization Board . . . Charles L. Davis, gen'l mgr, Aeronautical Div., Minneapolis-Honeywell . . . W. T. Noll, ass't gen'l mgr, Aeronautical Div., Minneapolis-Honeywell . . . R. H. Owens, mgr, mfg engineering div., Beech Aircraft Corp . . . Harry D. Copland, mgr, Florida State Aviation Dept.

Alouette Sets Six New World Records

Farmingdale, L. I.—Among six records for rotary-wing aircraft established by the Alouette, a jet-powered helicopter, is a new world altitude figure of 36,501.125 feet. This is 6,201.125 feet higher than the one set in December 1957. Official confirmation is expected shortly from the Federation Aeronautique Internationale. The information was released here by Republic Aviation Corporation, who assembles and markets this five-place, French-designed craft in the United States and Canada.

All six records were set at the French Air Force Test Center, Bretigny, on June 13, a Republic spokesman stated. Included was a record for climbing to 31,267 feet with two passengers, topping the mark for helicopters in the 2,205-lb. to 3,858-lb. payload class.

The Alouette is not only setting new world records abroad, but in the U. S. it is establishing outstanding operational figures daily. One example is its performance for Aetna Helicopters, Inc., flying out of New Mexico for the U. S. Forestry Service. Within 30 days, one Alouette has . . . carried 54,623 lbs. of cargo, 214 passengers—made 246 flights—flown 97.51 hours with an amazing corrective maintenance figure of only 3 hours. Working at altitudes ranging from 7,000 to 10,000 feet every time, as many as 32 missions have been accomplished in one day of operation.*

Equally impressive are the Alouette's commercial performances at sea level. Operating out of Louisiana in the Gulf of Mexico, the Alouette II is now serving oil rigs located 72 miles off shore at high temperatures and under maximum gross load requirements.

For fulfillment of private, commercial and government helicopter requirements, the Alouette II offers extraordinary versatility, reliability, economy.

**Designed by Sud Aviation*

Contact Helicopter Division for literature and demonstration flight. EARLY DELIVERY.

REPUBLIC AVIATION CORPORATION

HELICOPTER DIVISION

FARMINGDALE, LONG ISLAND, N. Y.

Circle No. 2 on Reader Service Card

in providing you with complete technical facilities and competent service. Stop in and chat with us about all your needs.

DOT AIRTRONICS

THE EAST COAST'S finest aeronautical radio, sales, service and custom installation facilities.

CAA approved repair station. Certificate No. 3992, Radio Class 1 and 2 Unlimited. Limited instruments. Lear L-2 Automatic Flight Control Systems and Lear Arcon Automatic Rudder Control Systems.

Distributors for Collins, ARC, Dare, Flighttronics, Lear, Narco, Wright. Service and facilities for all manufacturers including Bendix, Sun-Air, Wilcox, etc.

DOT AIRTRONICS

Zahns Airport, Lindenhurst, N.Y.

Write for Zahns Airport Guide

Circle No. 3 on Reader Service Card

Aviation Roundup

BREGUET 940 STOL has completed seven flights and shown "excellen handling and control characteristics at slow speeds." The craft has been air borne for more than 15 minutes on a flight and has attained an altitude o more than 3,000 feet. The 940 is first STOL (short takeoff and landing) to fl with four interconnected propellers. It utilizes deflected slipstream principle t achieve near vertical takeoff with minimum payload. Under technical inter change and cross-licensing agreement by Breguet and Piasecki Aircraft Corp. in January Piasecki will be sales agent and distributor for the 940 in the U.S and Canada, also be able to manufacture the craft.

★ ★ ★

SIKORSKY S-62 AMPHIBIOUS COPTER undergoing water tests. The tur bine-powered craft made autorotative landings (power off) at air speeds o about 25 kts and ground speed of about 10 kts. Conditions were "sea state 2" (waves between two and three feet high) and, at times, bordered on "sea stat 3" (waves from three to five feet high). No signs of water on tail rotor or i engine intake, Sikorsky engineers report.

★ ★ ★

AVIATION ENTHUSIAST, GAG-WRITER, Zeno Klinker "has film, wi travel." History of aviation on 35 mm sound movie film dates from 1900 t present. Klinker in 20th year as business flier Edgar Bergen's head writer.

★ ★ ★

NEW FIVE-PLACE PLANE under development by Davis Aircraft Corp Lake Village, Ind. President Leon Davis says that all-metal plane has tricycl gear, high wing, powered by Lycoming 0360 A1A, 180 hp engine. Prototyp flown more than 25 hours. Object of design: high useful load, roominess, lo initial and operating cost. Features all-flying V-tail.

★ ★ ★

LONG-TERM LEASE, LEASE-PURCHASE program for business and exec tive aircraft announced by William C. Wold Associates, New York City. Pr gram provides plan to arrange sale of leasee's aircraft and, if desired, cred all or a portion of proceeds toward the lease of a new aircraft. First transactio completed with delivery of American Airlines' Convair 240 to Hal Roac Studios. Contract provisions include basic five year lease period, and add tional five year extension. Standard 40-passenger airline interior converte for executive use.

★ ★ ★

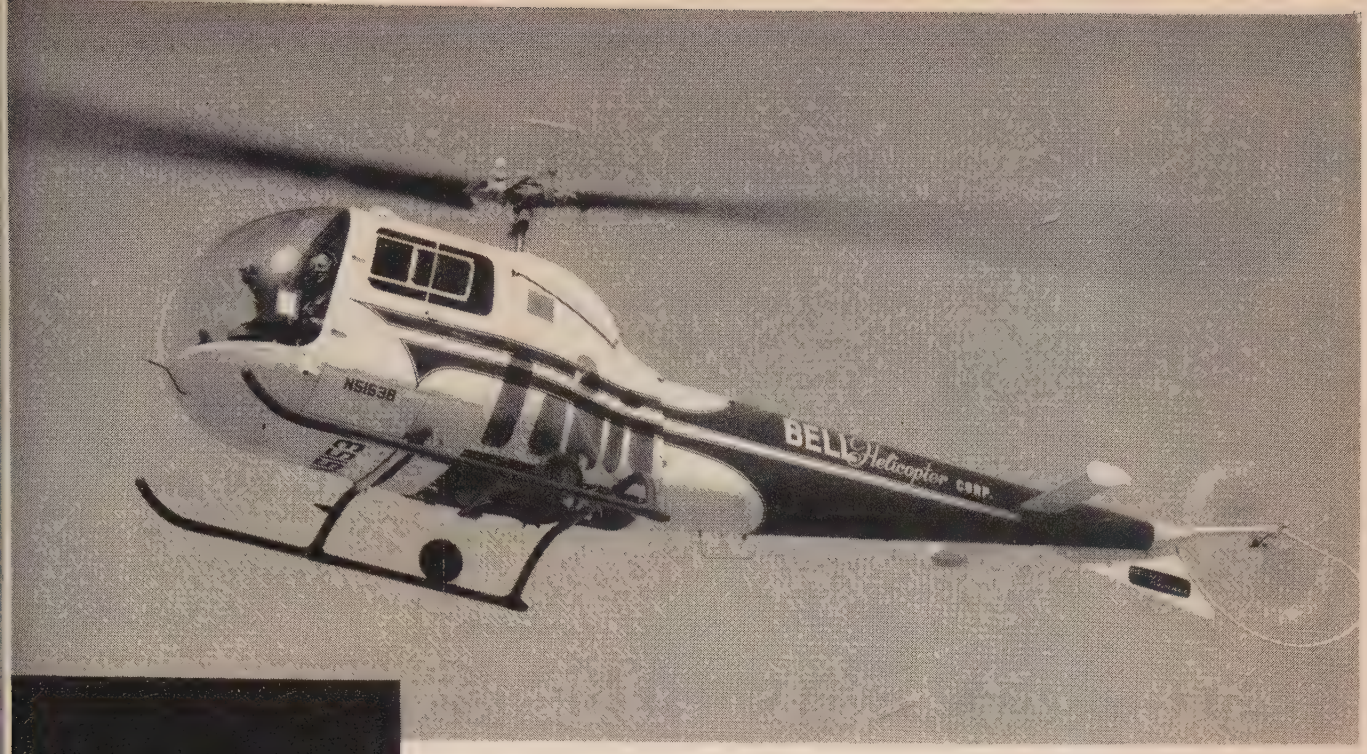
GYRODYNE'S ROTORCYCLE ORDERED by military for tactical adapt tion of the one-man model XRON-1. (See Skyways, March, 1958 page 18. Company has subcontracted to Lear, Inc., Grand Rapids, Mich. for electroni equipment, and to Porsche, Stuttgart, Germany, to supply engines. Gyrodin Co. of America, Inc. is at St. James, Long Island, N.Y.

★ ★ ★

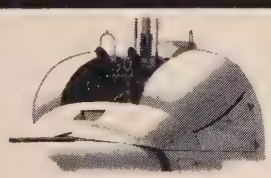
MORRISEY "2150" NEW TWO-PLACE utility airplane certificated b CAA. William J. Morrisey, president, Morrisey Aviation Inc., announces pr duction under way at Orange County Airport, Santa Ana, Calif. Plane is lo wing all metal, tandem seating with fixed tricycle gear. Lycoming 150 hp engi gives top speed of 148 mph and rate of climb of 1,450 fpm at gross of 1,817 lb

★ ★ ★

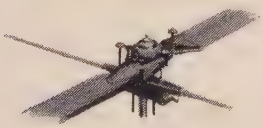
INCREASED KEY PERSONNEL LOAD FACTORS FOR BUSINESS AI CRAFT theme of bid by Air Express Division of Railway Express Agency (ju designated as Cargo Sales Agent in U.S. for Int'l. Air Transport Assoc.) Sep rate air shipping of excess luggage and/or company material over long distanc can reserve vital space/weight for otherwise refused personnel or fuel.



the NEW BELL Ranger



Streamlined, larger capacity fuel tanks for extended range.



Metal blades give better performance, longer life.

CAA approved Day-Glo paint trim to complement new Ranger interior.

top of the line for '59!

You know immediately . . there's something *new* in the air . . when you see the flash of color the '59 Bell makes in the sky. That's its new Day-Glo paint trim . . for good looks, for *high* visibility . . a CAA endorsed safety measure. New Horton and Horton designed interiors with the executive look bring you a choice of new fabrics and color combinations.

That's the *look* . . but it's the built-in performance and maintenance features that reflect the value and integrity you get in the new Bell. For there are new metal blades, to improve performance, give longer life. There's the extended range from larger capacity fuel tanks that have been beautifully integrated into the streamlined cabin design.

And, there are such things as a new engine mount that extends the overhaul interval up to 2,500 hours . . individual seat belts . . a speaker and traveling mike . . new maintenance and passenger access steps . . a stainless steel exhaust shroud. All in all, over 25 *new* features and improvements made possible by Bell's many years experience in the field.

For Bell has *more* experience than any other helicopter manufacturer . . over 2,500,000 hours of flight in 52 countries worldwide. And this new Bell incorporates, along with its new refinements, all the tried and true features that have made Bell the greatest name in helicopters. It's why the '59 Bell brings you *more for your money than ever before.* And it's ready for delivery *now!* For more information about the exciting new Bell, write Department 29J, Bell Helicopter Corporation, Fort Worth, Texas.

Extraordinary opportunities for highly creative engineers with extensive academic background — to enter the new and challenging field of helicopter research and design. Send resume.

BELL Helicopter CORPORATION

FORT WORTH, TEXAS • SUBSIDIARY OF BELL AIRCRAFT CORPORATION

Circle No. 4 on Reader Service Card

Rebat®

. . . world's finest aircraft battery

First choice of men who build, own, fly and service aircraft.

THE ELECTRIC AUTO-LITE COMPANY • BATTERY DIVISION • TOLEDO 1, OHIO

Circle No. 5 on Reader Service Card

Next Time

Get it all in one haul!

Have it all done ON THE SPOT:

★ ENGINEERING
★ CONVERSION & MODIFICATION
★ CUSTOM INTERIORS
★ OVERHAUL & MAINTENANCE
★ SEATING & GALLEYS BY AEROSMITH
★ "PERSONAL TOUCH" CUSTOMER SERVICE

COMPLETE PARTS STORES • FINANCING AVAILABLE

MAKE IT MIAMI

L. B. Smith AIRCRAFT CORPORATION

"Home of America's Finest Executive Conversions"

P.O. Box 48 456 International Airport Miami 48, Florida

Circle No. 6 on Reader Service Card

Air Your Views

JETSTAR APPRECIATION

Dear Mr. Fisher,

I have read with much pleasure your article on the JetStar in the current issue of Skyways. I am delighted that you liked the airplane and passed the good points on to your readers, and we also appreciate the constructive criticism you offered.

Thank you for a very fine JetStar evaluation story.

A. C. Kotchian, Vice President and
General Manager
Lockheed Aircraft Corp., Georgia Div.

Dear Herb,

". . . happy that you had the opportunity to fly the airplane . . .

". . . the very fine article."

Clarence L. Johnson, Vice President
Advanced Development Projects

Dear Herb,

". . . We appreciate it and the manner in which it was presented very much . . .

". . . we are ordering reprints . . ."

Lee Rogers
Public Information Manager

CAA SALUTATIONS

Dear Editor,

May I take this opportunity to express the appreciation of all employees of the Civil Aeronautics Administration for your excellent article about our mission which appeared in your July issue. (After 20 Years—CAA, page 26.)

Many thanks for your kind cooperation in helping us tell the "CAA Story" as part of our Twentieth Anniversary celebration—our "Project 20/20."

James V. Bernardo
Staff Assistant
CAA, Washington, D.C.

" . . . THE WINGS OF AN ANGEL"?

Dear Editor:

We would greatly appreciate your making available to us a copy of the article in the July issue entitled "A System for Tracking With The ADF."

Many thanks for your cooperation.

(Name withheld on request)
FOR THE WARDEN
U.S. Dept. of Justice
Bureau of Prisons,
United States Penitentiary
(Location withheld)

FLYING PHYSICIANS CONVENTION

Dear Editor:

It was a real pleasure to meet you at our recent FPA meeting at Montauk, Long Island, N.Y., and to have the opportunity to participate in the panel discussion (SKYWAYS Round Table—"Relevancy of Current Physicals to Pilots's Health & Safety." Watch for it in a coming issue!) This is a very interesting and helpful way to present such pertinent information. . . . I learned a lot in the process.

H. Halbert Leet, MD

NBAA DIRECTOR'S NOTES

Why did NBAA, in its testimony before Congress, demand that the new Federal Aviation Agency be completely divorced from accident investigation?

Here is NBAA's statement to the Senate and to the House Committees:

"To provide that the Federal Aviation Agency be placed in a position of investigating its own personnel, its own equipment, its own regulations, its own standards—as they will have to do in determining accident causes—is to provide an investigatory body which will investigate itself. The implications of such a possibility are, we believe, obvious and not in the best interests of aviation nor to the steady improvement of the Federal Aviation Agency."

The recently released CAB accident report on the United Air Lines—Air Force F-100F accident near Nellis Air Force Base, Nevada said "The Board believes that CAA exercised poor judgment in failing to take any action with respect to conditions that existed on the airway structure which impaired visual collision avoidance and created unnecessary collision exposure."

The Board further criticized the CAA for failure to take corrective action even after United Air Lines had complained of the VFR penetration procedures on the Las Vegas Airway.

NBAA was the *only* aviation association to demand that the CAB have complete and sole authority for accident investigation.

We leave it to your imagination as to what could have happened had the FAA conducted the Nellis mid-air collision investigation. Do you think that this type of accident report would have ever been given public prominence?

More and more airport planning consultants are contacting NBAA regarding construction of new airport facilities.

The growth of general aviation—particularly that of business flying—is receiving greater attention by the private planning agencies who—in turn—draw up plans for airports and their terminal facilities.

Provision for adequate gate space, for near-to-terminal aircraft parking space, and better refueling facilities at terminals are among NBAA's prime recommendations.

United Air Lines, recognizing this present problem and noting the future expansion of this type of inter-change, has offered NBAA members use of their gate facilities—whenever possible—to expedite passenger handling. TWA several months ago, pioneered this step.

Business, we have found, usually goes to those who make it easy to do business with—and our sincere congratulations to United and TWA for their progressive cooperation.

Some smart guy in the State Department, in CAA, in CAB or other governmental agencies which participate in the all-nations ICAO deliberations on civil aviation regulations will suddenly discover the greatest weapon the U.S. can use in international aviation matters—particularly those concerning navigational aids.

The "weapon" is the 75,000 non-airline, non-military aircraft now flying in the United States. The U.S. is required to set up an airways system, an air traffic control complex, an airport program to meet the capabilities of this great aviation fleet.

No other country in the world has this requirement.

Yet, the U.S. ICAO representatives keep their heads buried in the airline-military quicksand when their most obvious and most legitimate lifesaver is right at hand—and has been for many years.

Bill Lawton

BAYAIRE AVIONICS
INCORPORATED

HANGAR No. 2
OAKLAND AIRPORT, OAKLAND, CAL.

20 minutes to Downtown San Francisco

Service • Sales • Installation
• COMMUNICATIONS
• NAVIGATION
• CONTROL
• RADAR

CAA Repair Sta. 3863 I, II, LTD. III

Distributor for

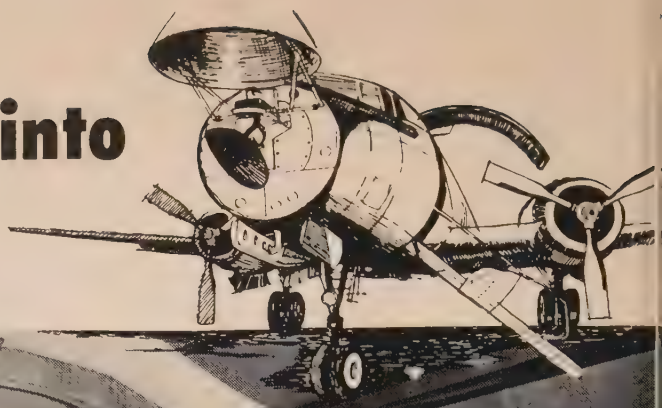
ARC
Bendix RADIO DIVISION
AVIATION ELECTRONIC PRODUCTS
COLLINS
DARE, INC
FLITE-TRONICS inc.

Service for
LEAR • MITCHELL • NARCO
WRIGHT • WILCOX
and others

BAYAIRE AVIONICS
INCORPORATED

Circle No. 7 on Reader Service Card

Converting Convairs into business offices



AiResearch Aviation Service has converted more than 60 Convair airliners into business and executive aircraft

Custom interiors, like the Convair 440 shown above, are specially designed, fabricated and installed by AiResearch engineering specialists and interior stylists to meet individual company requirements.

Specifically designed by AiResearch for aircraft use, interior furniture is of fully-stressed, lightweight construction. Expert craftsmen build and install lounges, office units, lighting systems, galleys, lavatories, soundproofing, drapes and carpeting—plus any type of personalized, custom furniture.

Convair 240, 340 and 440 modifications include airframe, engine and system improvements for greater reliability and better performance (the 340 may be modified to 440 configuration). Installation of additional fuel tanks, auxiliary power units, radar nose, radio, autopilot, new instrumentation, and new electrical, hydraulic and pneumatic systems as well as exterior painting are done by AiResearch specialists meeting all CAA regulations. AiResearch is qualified to perform all Convair Service Bulletins.

Hundreds of other aircraft, including DC-3s, DC-6s, DC-7s, Lodestars and D-18s, have been converted by AiResearch...its more than 150,000 square feet of floor space representing the finest conversion, modification and servicing facilities available.

You are invited to inspect these facilities. A free brochure will be mailed to you upon request.

THE GARRETT CORPORATION

AiResearch Aviation Service Division

International Airport, Los Angeles, Calif. • Telephone: ORegon 8-6161

Conversion and Modification • Custom Interiors • Electrical and Instrument • Radio and Electronics • Engineering Service • Turn-Around Service

Circle No. 8 on Reader Service Card

The Board of Directors and the Executive Staff of the National Business Aircraft Association.

344 Pennsylvania Bldg.,
Washington 4, D.C.

WILLIAM K. LAWTON
Executive Director
Secretary

RICHARD W. GROUX
Assistant to the
Executive Director

•

BOARD OF DIRECTORS
President and Chairman of the Board
JOSEPH B. BURNS
Fuller Brush Co.
Hartford, Conn.

Executive Vice President
GERARD J. EGER
International Harvester Co.
Chicago, Ill.

Treasurer
JOHN H. WINANT
Sprague Electric Co.
North Adams, Massachusetts

E. M. BEATTIE
General Electric Co.
Schenectady, New York

B. J. BERGESEN
Ford Motor Co.
Dearborn, Michigan

HENRY W. BOGGESS
Sinclair Refining Co.
Tulsa, Oklahoma

JIM KETNER, JR.
Texas Eastern Transmission Corp.
Shreveport, Louisiana

WALTER C. PAGUE
ARMCO Steel Corp.
Middletown, Ohio

RALPH E. PIPER
Monsanto Chemical Co.
St. Louis, Missouri

C. F. ZIMMERMAN
Continental Oil Co.
Houston, Texas

•

EXECUTIVE ADVISORY COUNCIL
WILLIAM V. FISHER, President
Anchor Hocking Glass Corp.
Lancaster, Ohio

THEODORE H. BELLING, President
Fram Corp.
Providence, Rhode Island

ROY A. FRUEHAUF, President
Fruehauf Trailer Co.
Detroit, Michigan

HERBERT P. BUETOW, President
Minnesota Mining & Manufacturing Co.
St. Paul, Minnesota

J. C. DONNELL, II, President
The Ohio Oil Co.
Findlay, Ohio

WILLIAM E. ROBINSON, President
The Coca Cola Co.
New York, New York

Editorial

A NEW STANDARDS MANUAL IS BORN

American industry has led the modern world in establishing and in administering specialized organizations, in setting up production lines; in the arts of manufacture, distribution and sales. American industry has been astute in analyzing anticipated problems, in diagnosing unforeseen bottlenecks and in planning for efficient operations.

Accomplishments of American industry have not been accidental. Conversely, this seeming magic has resulted from *know-how* which has cost scores of millions of dollars.

What have been the sources of this costly *know-how*?

The sources have been myriad, including college campuses, company labs, hotel committee rooms, city auditoriums, pullman parlors, public libraries, aircraft hangars and even cabins of airplanes winging across the land. Such sources have produced the literature, technical and otherwise, that keep American industry ahead of the rest of the world in *know-how*.

American industry succeeds and it astounds the world with its success because it is constantly and forever in school. This schooling is costly, but it pays good dividends. American industry is constantly and forever in the kind of school that polishes. And polish comes from friction: the friction of minds that consider and weigh, that discuss and adopt, that consider and reconsider until finally the chaff and the wheat are separated.

Competitive as the individual companies of a given industry may be, they meet, they discuss, they agree and they disagree. They plan standards that upgrade the whole; they freely discuss new approaches, new methods and new techniques that conquer common problems. Competitive as individual companies may be, they recognize a common destiny. Within the realm of realistic logic, they readily admit that what is good for one is good for all. This is democracy at work—industrial democracy.

Scarcely a day goes by that does not produce new thoughts, new techniques, new procedures, new standards. Mostly these new concepts are confined within the group and type of industry affected. Occasionally, however, industry as a whole gets together and tackles the problems that cross the lines of individual industrial groups.

Such has been the case in the production of NBAA's new Recommended Standards Manual for Business Aircraft—a manual that covers the management, the operations and the maintenance of company operated airplanes.

NBAA's Business Aircraft Manual answers questions and suggests methods and procedures for the use of aircraft by the steel industry, by the oil industry, by the glass industry or by *any* industry; it is designed to help both big and little operators, including the individual businessman whose success depends upon safely and efficiently communicating over great distances where time is money.

NBAA's Manual should have value to the experienced business aircraft owner as well as to the businessman just breaking into the field. The former knows and the latter will soon find out that any one with money, either an individual or a company, can buy an airplane; any one can hire a pilot. But buying an airplane and hiring a pilot does not mean that the right airplane for the required job will be bought; it does not mean that the chosen pilot will necessarily have the training, the background, or the experience to insure safe and efficient aircraft operations.

There are many things to know, many considerations to be made *before* an airplane is bought, *before* a pilot is hired. There are many decisions to be made and countless things to be done, from scheduling, cost accounting and maintenance to company operating policies, *before* an individual or a company can be said to be ready to operate a business aircraft.

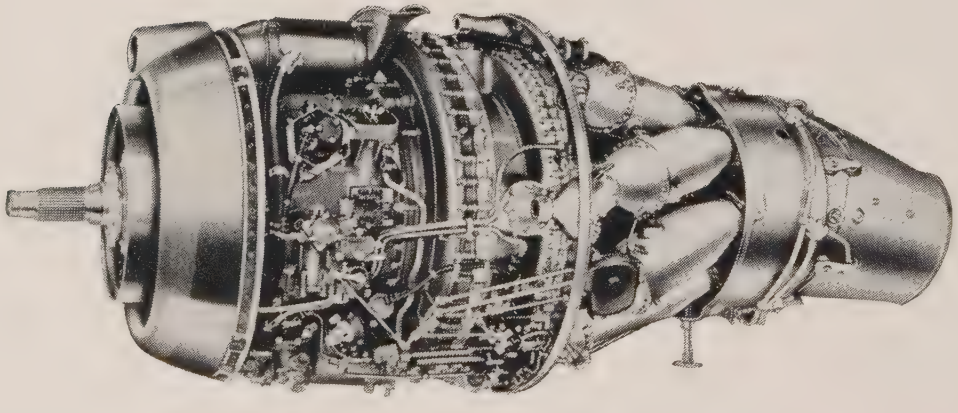
Much of the information contained in NBAA's new Standards Manual was known to a few but not available to the many until this Manual was produced. The wealth of information it contains had not been put on paper. The process of putting it on paper consumed the time, the energy and the talents of many men on college campuses, in hotel committee rooms, in city auditoriums, in pullman parlors, in public libraries, and in aircraft hangars. The employers of these men picked up the tabs. These many men met and discussed; they met and argued; they met and revised and compromised and finalized a first attempt to cross industry lines and produce a specialized piece of literature which should be beneficial to all classes of business aircraft operators everywhere. The *know-how* of business aircraft operation is now available to everyone.

As with all literature, particularly that which deals with techniques, the first edition of NBAA's Manual is doubtlessly subject to certain revisions, modifications and changes. NBAA has assumed the responsibility of updating its Manual from time to time in an attempt to keep it current and modern.

A new Standards Manual is born; a Manual that is true to the tradition of American industry; a Manual designed to conquer common problems. Here again is concrete evidence of industrial democracy at work. NBAA's Board is to be congratulated for its vision, its tenacity and its accomplishment.

ROLLS-ROYCE
DART
PROP-JETS

**POWER THE VICKERS VISCOUNT
AND THE FAIRCHILD F-27 AND HAVE BEEN CHOSEN
FOR THE ARMSTRONG WHITWORTH ARGOSY
THE HANDLEY PAGE HERALD AND
THE GRUMMAN GULFSTREAM**



***For airline, local service carrier
and executive operation, the Rolls-Royce Dart is
the most proven prop-jet in the world.
It has flown over 5,000,000 hours in
scheduled airline service.***

ROLLS-ROYCE LIMITED, DERBY, ENGLAND

AERO ENGINES · MOTOR CARS · DIESEL AND GASOLINE ENGINES · ROCKET MOTORS · NUCLEAR PROPULSIO

Circle No. 9 on Reader Service Card

AERO DESIGN

BEECH

BELL

CANADAIR

CESSNA

COLONIAL

FAIRCHILD

GRUMMAN

HELIO

HILLER

LOCKHEED

MOONEY

NORTHERN

PIPER

REPUBLIC

SIKORSKY

TRECKER

A Matter of Faith

When all the country was resounding a year ago with forecasts of recession, of the "downward trend" in sales, of industry in general, it would have been very easy and quite understandable if the aircraft industry had literally sat on its hands, or with much breast-beating, deplored the military's swing to rocketry and missiles away from prime airframes.

Instead, at drawing boards across the country, those hands were busy sketching out visions of a new future—the emergence of business aviation as a leading source of *new business*, a potentially great market for new airframes, powerplants, electronic and other equipment and a vast consumer of all sorts of services and supplies. The potential size can only be estimated by comparing it to the relative strength of the automotive industry to all other forms of ground transportation.

Indeed, when the decision had to be made—whether to retrench and wait for the blow to pass, or to stand up to the challenge and fight back with all the industry's resources of brains, courage and money—the answer was based on something more than economists' gloomy predictions or a paternalistic government's promise of military pump-priming. It was based on—FAITH, the faith in our country's solid foundation and its destiny.

When all the facts were assembled, the responsibility for the decision could only rest in one place—on the shoulders of the men who would have to answer someday for that decision. These men were the presiding officers, the top management officials of the airframe companies.

Their answer can be heard all over the land as new, sturdy wings take to the skies to carry business aviation faster, higher and farther into the future of American business and industry. In the pages following, these men tell in their own words, how and why they and their associates found the answer. The words and the reasons vary—but through them all runs one undercurrent—*FAITH*

George T. Pew, *President*
AERO DESIGN & ENGINEERING COMPANY

Business Aviation Climbing to New Altitudes of Achievement

Our economic situation has been affected by two forces: the decli in inventories and the cut-back of seven billion dollars in capit spending. Corporate aircraft are capital items and we are vitally co cerned with this decline. We depend upon how business makes up shopping list. First things come first. Many things are needed—ne plants, machinery, office equipment and airplanes. Often the compa plane is at the bottom and money runs out before we get to it wh capital spending is cut.

Where should the airplane be? Consider this—industry willing spends money (thirty billion this year) for other capital items—ite designed to increase productivity of the worker. Yet, management the most important group. Competition between companies is rea competition between managements. How can we increase their pr ductivity? Studies have shown that additional executive staff is not t answer. A dictaphone might do some good. What else can be don

We can *buy* Time. Company planes *provide* Time. Aircraft, wh properly understood, belong near the top of the shopping list. Our j is *to provide that understanding*. If we do it, our market for busine aircraft is assured—today and tomorrow.

George T. P

O. A. Beech (Mrs. Walter H.), *President*
BEECH AIRCRAFT CORPORATION

A *New Type of Management Control*

It is typically American to want to go places *in a comfortable hurry.* And it is quite business-like to try to accomplish goals *in a profitable manner.*

These, I believe, are the basic reasons that account for the *dynamic growth* and the *unlimited future* of business flying.

The company-owned business airplane definitely represents one of the most efficient business machines ever presented to American industry. It does well the things required of a good machine: *saves time, manpower and money; and helps business grow.*

Throughout history, business and industry have been first to adopt each new form of transportation. In every era, the pioneers have profitably forged ahead faster and faster. Business on the move always seeks to stretch out beyond the restrictive limits of older travel and transport methods. Today, the swift mobility of an executive fleet of business airplanes provides striking power to develop old markets and find new ones.

Fast, comfortable, economical, practical—these factors provide a new 200 mile-an-hour personal transportation permitting executives to *go when they want to go, where they want to go.* Business flying also provides a new type of management control.

Beech Aircraft today markets a complete line of business airplanes —executive transports with 200 miles-per-hour travel speed and the ultimate in ruggedness, comfort and economical performance. These business Beechcraft help literally thousands of executives out-distance competition in the race for business.

Today's economy is vitally dependent on fast transportation. The future of business flying is indeed bright!

O. A. Beech (Mrs. Walter H.)

Harvey Gaylord, *President*
BELL HELICOPTER CORPORATION

Increasing Inadequacies of Urban Ground Transportation Emphasize Role of Helicopter in Business

Tangled ground transportation conditions are forcing businessmen to look to the sky for escape.

During the past decade or two, business discovered the light airplane and took advantage of its time-saving abilities for medium range business trips.

We feel that the current decade belongs to the helicopter.

According to a recently-published survey there are 52 million automobiles choking our streets and highways. Ten years from now an estimated 20 million more cars will boost the U. S. automotive population to 72 million.

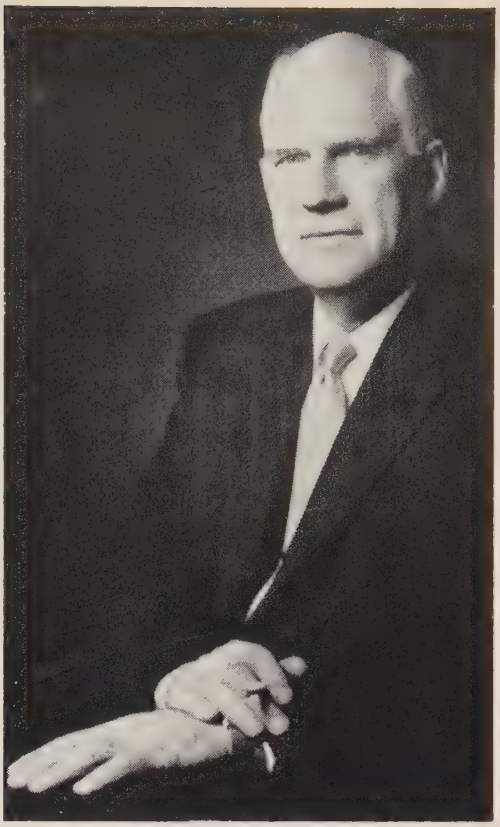
The helicopter has proven that it is the only fast form of door-to-door transportation left to the travel-weary businessman. In 1956 and again in 1957, many businesses and industries solved their interplant and intracity transportation problems by adding a helicopter to their corporate air fleet. Today they are saving hundreds of valuable working hours annually by flying *over* knotty ground traffic.

Bell Helicopter Corporation, world's largest and oldest commercial helicopter producer, recognized this new market during the Korean hostilities. As soon as military production permitted, the company developed and built the three-place Model 47H. The Bellairbus, and the current four-place Model 47J Ranger, offer the harried businessman style and comfort coupled with the freedom of flight unobtainable by any other form of transportation.

Continuation of the business trend for decentralized manufacturing operations, natural business growth and diversification, coupled with the increasing frustrations of ground transportation (even those short rides to and from the airport) will add impetus to business use of the helicopter.

Harvey Gaylord

Turboprop Conversion — Jet Age Performance Wedded to Business Economy



J. Geoffrey Notman, *President*
CANADAIR, LIMITED

We of Canadair are completely confident that the ownership and use of executive aircraft by corporate and "private" owners will continue the phenomenal growth shown during the past few years. The heavy traffic on scheduled airlines, the increasing time-pressure on businessmen, the trend toward decrease of railroad passengers facilities and the excellent tax position inherent in the purchase of executive aircraft all dictate still-greater need for corporate aircraft in the future.

Canadair is investing substantial resources in entering that market. We had some experience with it just after the war, when we converted hundreds of C-47's to commercial and executive DC-3 configurations for customers in many countries. Our principal aircraft now, for this field, is our "Canadair 540," a two-engine turbo-prop medium-range aircraft based on the well-proved Convair 440 airframe with the Napier Eland engine.

We are producing the 540's at present in a military transport configuration for the Royal Canadian Air Force, and we fully expect to place them with airlines in various countries. But in addition, we are certain that this airplane, with interiors designed according to customers' specifications, will prove ideal for many corporate requirements from the standpoint of capacity, easy maintenance, speed and range, and operating economy.

Paralleling our production program for these aircraft is our conversion program by which we are undertaking to convert Convair 340's or 440's to turbo-prop power, either in our own plants in Montreal or through the supply of kits.

The growth of executive aircraft use, in company with the immense expansion of scheduled airlines, presents a truly splendid picture.

J. Geoffrey Notman

David B. Thurston, *President*
COLONIAL AIRCRAFT CORP.

A New Look at the Role of the Amphibian

As business and industry will continue to expand in the foreseeable future, increased competition in the sales field and in the seeking of new work must be anticipated. The executive airplane, in addition to the now minor value of adding prestige to the user's efforts, is a great asset in its ability to shrink distances—permitting the capable business man to successfully cover up to ten times the territory now possible by car.

Colonial Aircraft Corporation, pioneering in the rebirth of the executive amphibian, believes most strongly that the normal operating safety of today's single engined aircraft finds considerable extension through the addition of a strong hull possessing excellent water characteristics. Not only is every pond, lake and river an emergency landing field, but also the rugged hull structure required to meet CAA amphibian design requirements provides exceptional passenger safety in the event of a forced landing over undeveloped terrain.

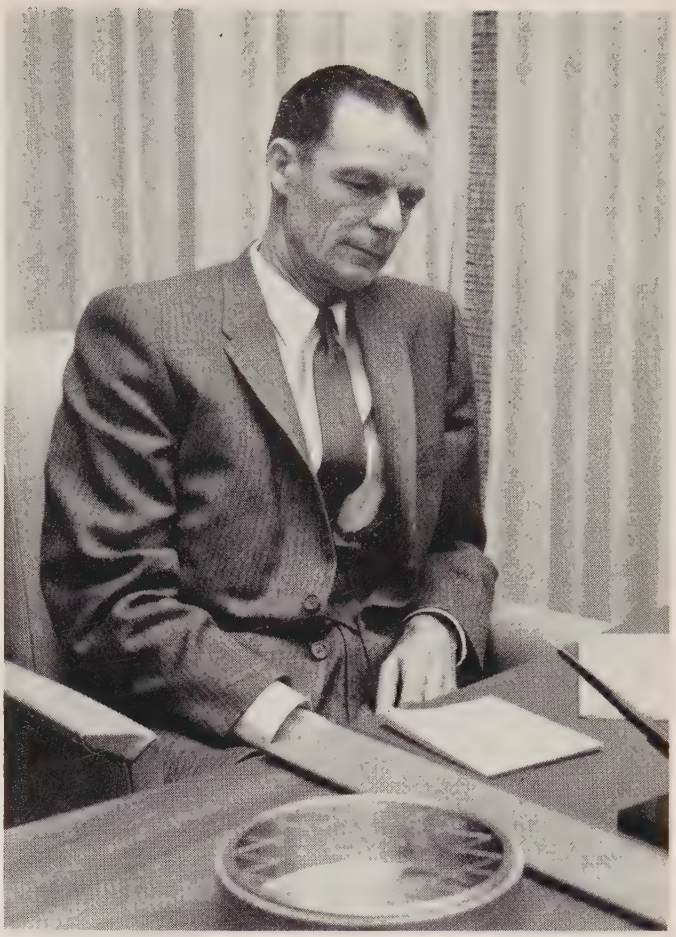
As more business men, particularly those with summer camps in a remote area or a strong interest in hunting and fishing, learn that water flying can be as easily mastered as land operation, we look for a rapid expansion of our sales into the combined business/pleasure market.

Additionally, in many congested metropolitan areas where the delays in ground transportation have almost doubled commuter and airport-to-office times, downtown amphibious facilities are acquiring new stature. Unaffected by the limitations of the pure seaplane, the high-performance amphibian can favorably compete with office-to-office block times of other air transportation on 150 to 300 mile trips.

In general, as the ground transportation picture everywhere gets blacker and blacker, industry is forced to take to the air for expansion and progress, and we are confident that the time is right for a business amphibian.

David B. Thurston

Uninhibited Personal Air Transport Increases Management Productivity



Dwane L. Wallace, *President*
CESSNA AIRCRAFT COMPANY

The business aircraft industry is on the move—more than at any time in its past history.

Productwise, the industry is continually improving. The customer today enjoys a greater dollar value, a wider field of products from which to choose and a better built airplane than ever before.

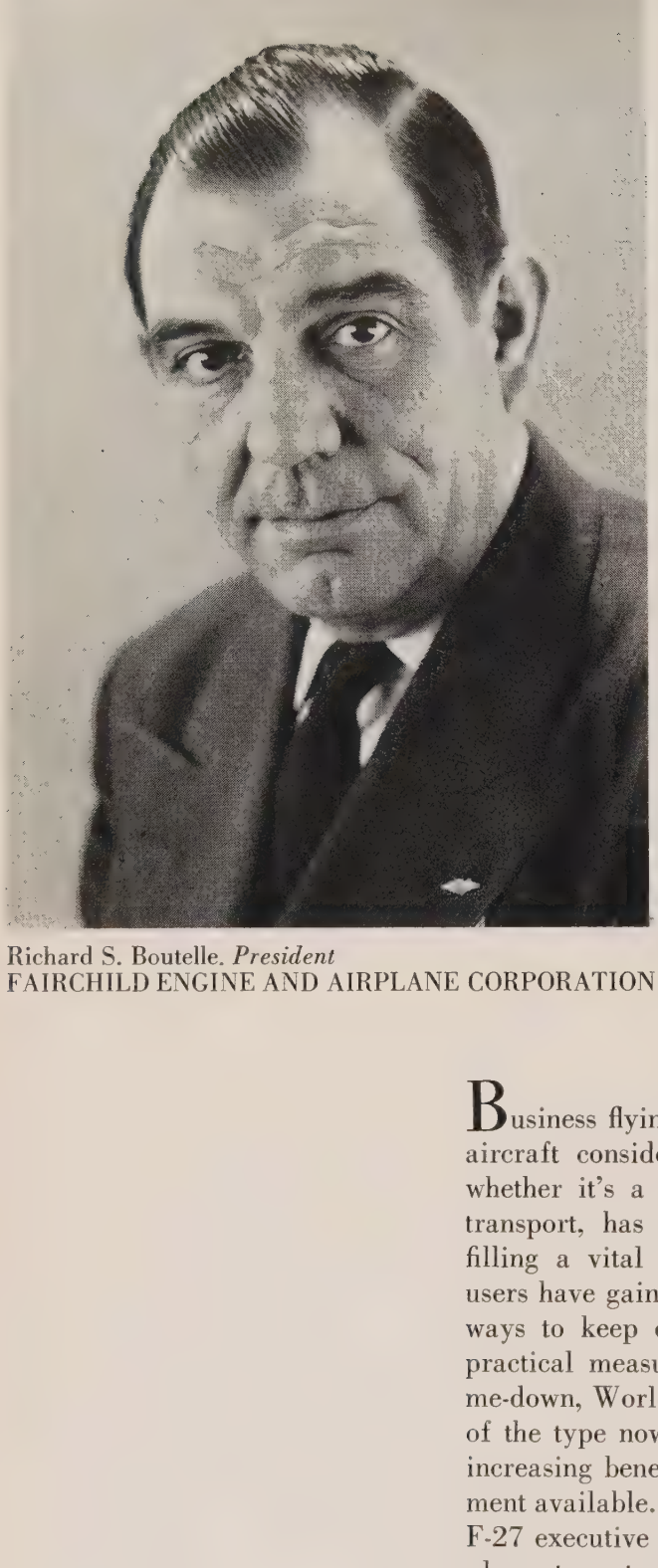
But attitudes are changing too. The primary reason for the industry's position today is "acceptance." Increasing numbers of business firms and individual businessmen are accepting the airplane as an expedient means of transportation. Through the use of the airplane, executive and sales personnel are becoming more productive, because they spend less time traveling, but cover greater areas.

The number of student and private pilots is increasing at a rate greater than any other time in recent history. Our market is growing consistently and will continue to grow. Business air transportation has barely scratched the surface considering the potential of future growth.

We at Cessna have built our organization on the foundation of faith. We have faith in our products, the market and the future. We also recognize the challenge of improving our products, expanding our markets and building a better world through aviation.

The industry has come a long way—and has a long way to go. Today we are standing on the threshold. The challenge of the future is ours.

Dwane L. Wallace



Richard S. Boutelle. *President*
FAIRCHILD ENGINE AND AIRPLANE CORPORATION

The "Propjet" Opens the Jet Age to Business Flying

Business flying has grown to full maturity, no longer are corporat aircraft considered play things or luxuries. The business aircraf whether it's a light weight, single engine plane or a multi-engine transport, has become one of 'business's most important tools fo filling a vital mission in highly competitive operations. Corporat users have gained operation know-how, have learned the most efficie ways to keep costs low and performance high. Certainly with th practical measurement of aircraft utilization established with hand me-down, World War II equipment, the new Jet Age business aircra of the type now beginning to roll off the production lines will mea increasing benefits and advantages previously curtailed by the equip ment available. We at Fairchild are proud of the fact that the Fairchil F-27 executive propjet is to be the first member of this new family o planes to go to work for business in the Jet Age.

The F-27 will enter service almost simultaneously with busines operators and local service airlines, whose field and operational prob lems most closely parallel each other. Both operations have relied o the DC-3 type equipment in the past. From the mutual exchange o operational experience will arise benefits and advantages that can b obtained and shared in no other way. The newer, more efficient equip ment should multiply the already proved values of corporate aircra utilization.

Richard S. Boutel

Leon A. Swirbul, *President*
GRUMMAN AIRCRAFT CORP.

A New Era for Executive Flying Demands Completely New Approach

When the Korean War started, Grumman was engaged in both military and civil aircraft construction. The civil portion was devoted to the up-dating and power increase of the popular Widgeon and original production of the Mallard, the only true amphibious transport in existence. The latter was widely accepted for its versatility and used by corporations whose needs could only be met by the special design characteristics. The Korean War, with its demand for concentration on military aircraft, took us out of further development for the civil market.

It did not prevent keeping a weather eye on that market during and since that time. Careful market surveys indicated that there was a growing demand for aircraft especially designed as executive aircraft that could do the job faster and more economically than converted war-wearies and obsolete hand-me-downs from the scheduled airlines. But the market research also revealed that the demand did not yet exceed the supply. Meanwhile our engineers, planning years ahead, laid out airframes on drawing boards and watched powerplant developments and experiences of the airlines and military.

A couple of years ago, the pieces started to fit together and make sense. Business aviation market size and rate of growth made clear that the time was at hand for a new approach to the new demand. Discarding any suggestion that we base the airframe on a modified military design or the powerplants on military-inspired combat categories, we wedded a new airplane, designed especially around the needs of business flying as we saw them, with the best available powerplant having the most actual civil operational history and gave birth to the Gulfstream.

It is our belief that the potential of business aviation is so great in the years to come that we could afford to start from scratch with a typically American engineering design approach, matching the new airplane to the state-of-the-art of powerplant development today but leaving the door wide open for power and performance boost in years to come. The major airlines with their long-range super-speed schedules cannot come close to meeting the freedom of movement and short-haul advantages of the business plane. As with ground transportation today, the largest industry in the world today would collapse if it depended on franchised bus lines for its market. It is the individual American businessman and company, large or small, that is creating the future of our industry. It is our unbounded faith in that future which has brought us to re-enter the field.

Leon A. Swirbul

Lynn L. Bollinger, *President*
HELIO AIRCRAFT CORPORATION

STOL — the Ultimate in Utility?

Developments in this dynamic Air Age are making headlines an records at both ends of the speed pole.

Fast flying by giant jets with unprecedented speeds makes news an requires ever larger airports. More quietly, but, I think, just as drama tically, aircraft with ultra-short landing characteristics simultaneousl are effecting changes of tremendous import in non-jet aviation an have brought us, almost unheralded, to the brink of a new era in avia tion.

During the decade immediately ahead, the most important develo ment affecting business flying, will be, I believe, the elimination of t present dependence upon large crowded airports, and their often i convenient locations.

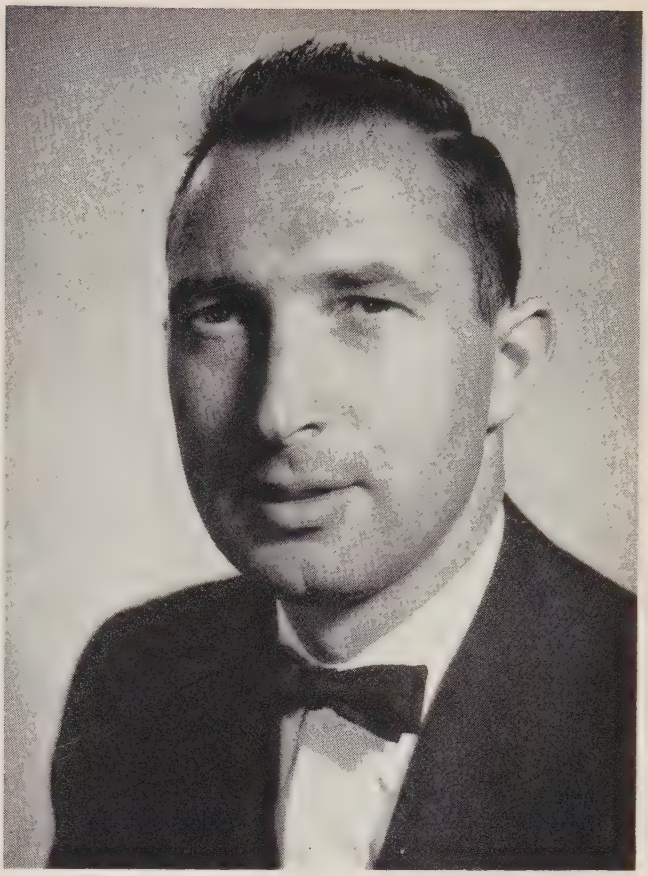
An "industrial revolution" among private plane owners is largel responsible, I believe, for the changes that must be wrought in th business flying picture. It is estimated that 26,000 planes now ar being used exclusively or primarily for business flying, and forecast predict the number will double in the next 10 years. This prospec with the concurrent increase in aircraft of all types, brings us directl to the problem of the crowded air and congested airports, and th potential of STOL-craft in relieving it. These aircraft can fly at 3 mph, cruise at conventional speeds and takeoff or land over a 50- obstacle in less than 500 ft.

Because of their landing and take-off and slow-flight characteristic STOL-craft can divert to the smallest airports or special strips in area outside present airport facilities, thus relieving crowded lanes. Go ernment agencies in the United States and South America are testin the potential of STOL-ports. The first such strip in this country recentl was opened by the Port of New York Authority at Teterboro Airpo in New Jersey.

We at Helio Aircraft Corporation welcome these experiments whic we believe will pave the way for new facilities and conveniences f the growing numbers of private and business plane owners and hel solve the dilemma of our overcrowded airports. We are proud to hav pioneered in this field.

Lynn L. Bolling

Helicopter Performance Takes the Brakes Off Short Range Business Transit



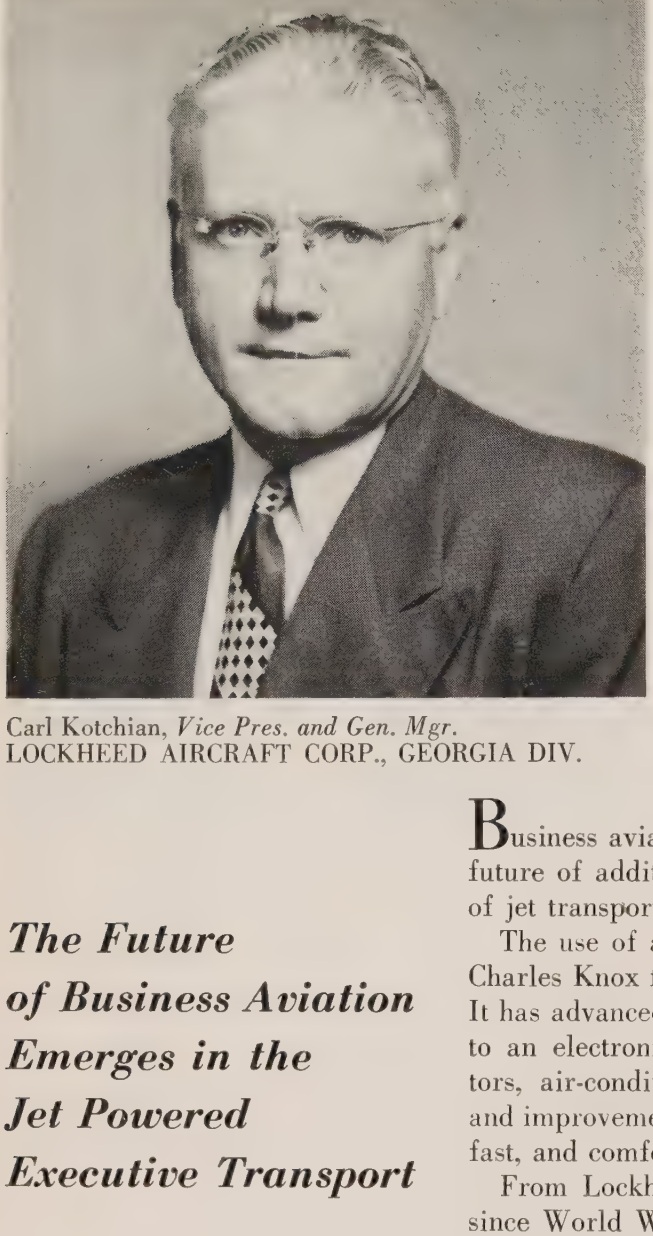
Stanley Hiller, Jr., *President*
HILLER HELICOPTERS

The most conservative among us look optimistically to the business aircraft market of tomorrow.

In the helicopter categories specifically, we see fewer and fewer limitations standing in the way of substantial continued commercial sales expansion. Most significantly, many of the technological problems which have limited the number and extent of helicopter applications during the industry's early years are now gradually but decisively being solved . . . with no small thanks to extensive military sponsorship. The industry's engineers have made many recent advances in such areas as greater mechanical simplicity, lower maintenance, extended overhaul life and lower operating costs in general. With these important solutions, and continual increases in helicopter performance, more and more businessmen are realizing that the purchase or charter of such machines is now vital to an increasingly large variety of operations. We believe that between helicopters, performance will be the major deciding factor, because higher performance means fewer mission limitations and more ton miles per dollar. Put that into a dependable helicopter, and the biggest market limitation left is our own ability to educate non-users and operators on the economical advantages an *advanced* helicopter can bring them.

Hiller's Commercial Division, whose business increased about 37 per cent last year and nearly 30 per cent the year before, will late this year come out with the highest-powered helicopter in the two to four-place class. We've very significantly augmented our sales and promotion forces to spread the word about this new 12E helicopter We expect the "Big E" to be, during 1959, fine evidence of the tremendous potential now existing in the commercial helicopter.

Stanley Hiller, Jr.



Carl Kotchian, *Vice Pres. and Gen. Mgr.*
LOCKHEED AIRCRAFT CORP., GEORGIA DIV.

The Future of Business Aviation Emerges in the Jet Powered Executive Transport

Business aviation, which has enjoyed a phenomenal growth, faces a future of additional domestic and international expansion as the age of jet transportation begins.

The use of aircraft as a business tool has come a long ways since Charles Knox first used a little dirigible in 1905 to advertise gelatin. It has advanced from a single-seater crop duster with an open cockpit to an electronic-equipped office-in-the-sky. Desks, galleys, refrigerators, air-conditioning, pressurization, and many other conveniences and improvements make today's business airplane highly efficient, safe, fast, and comfortable.

From Lockheed's experience, business aviation has advanced fa since World War II. In 1939, Lockheed built a 17-passenger, twin engine airline plane. Postwar this aircraft, the Lodestar, became known as one of the best executive transports. In 1940, the Lodesta set a transcontinental speed record of 9 hours and 29½ minutes.

When Lockheed last year decided to build a jet utility aircraft fo the military, it called the plane the JetStar. This is the first jet aircraf capable of meeting executive requirements. The prototype, which cruises at 500 to 600 miles per hour, crossed the nation in less tha 3½ hours. Built originally for military purposes, the JetStar is de stined to replace Lodestars in executive fleets.

The controlling reason for the existence of business aviation i *Time*. The *Time* element becomes even more important with competi tion moving at Jet Age speeds. Soon, giant jet airliners will cross th continent and oceans in mere hours. Aggressive firms will be force to re-evaluate their ability to keep their sales efforts in *Time* with thei competition.

The development of executive jets will enable business aviation t meet Jet Age competition, provide global transportation to interna tional firms, and conserve *Time*.

Carl Kotchia

Hal F. Rachan, *President*
MOONEY AIRCRAFT, INC.

Performance-per-Dollar Ratio of Small Aircraft Attracts New Era Businessman

Scores of independent businessmen fly their own or company airplanes on business trips all over the country for quick, easy access to areas not efficiently served by commercial air carriers. Although many of these businessmen are pilots of professional caliber, either service-trained or professional pilots graduated to executive positions in their companies, the majority find the economy and maneuverability of the small personal plane of greater suitability to their purpose than the larger air transport types.

With the increase in performance-per-dollar ratio of present-day light aircraft, it has become uneconomical for the fast-moving and far-ranging businessman to rely on the automobile and public transportation.

We at Mooney foresee a continuous and steady growth in the business aircraft market. More and more travel is being required and everyone realizes that the time en route is lost time. The improved safety, economy and speed of aircraft is attracting those who are seeking maximum efficiency in their operations. We at Mooney will continue to improve our aircraft so as to give the businessman the best possible dollar value in the most efficient mode of transportation.

Hal F. Rachan

Roy L. Strong, *President*
NORTHERN AIRCRAFT, INC.

New Flying Uniform — the Grey Flannel Suit and Briefcase

At the risk of destroying all the glamor associated with airplane we must admit that we are engaged in the manufacture of a busine tool.

We are not building planes for the "wild blue yonder boys" yesteryear. The leather jacket and the flight scarf have been replace by the grey flannel suit and the briefcase.

Any predictions about the future of our particular segment of t private aviation market must be predicated upon a thorough study the businessman-pilot, the man who will buy and use the airplane th he can economically justify and effectively utilize.

This is the man upon whom we are basing our present and futu plans. He is a man who is only casually interested in the glamor, e citement and romance of flying. He wants us to demonstrate co vincingly the practical and realistic aspects of our airborne busine tool.

It has been gratifying indeed for us to witness the reception giv our airplane by businessmen. This, we believe, is largely due to t tremendous improvements in the power plants of modern single-engi aircraft. And we are confident that the future will bring further, mo exciting developments in this field.

In order to make our sales presentation sound, we must concentra heavily upon the low initial cost and maintenance expenses of sing engine aircraft. In some cases we, as an industry, will find it necessa to re-sell the businessman-pilot on single engine safety.

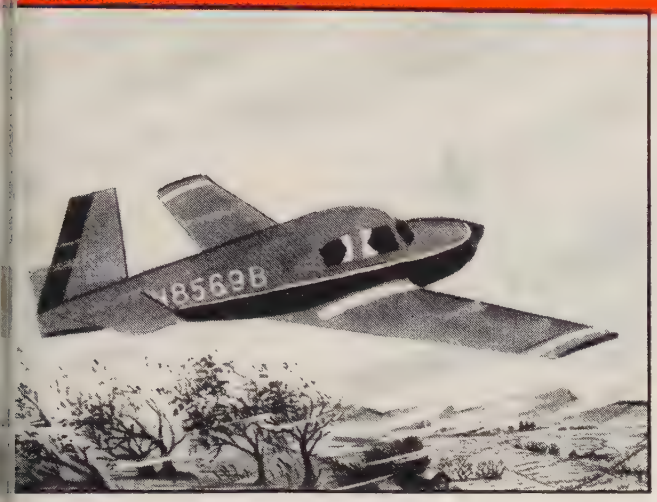
We are continually attempting to develop the kind of single engi product which enables the average pilot to realize the full utility of h airplane at a reasonable investment. We offer, too, a side benefit safety and extreme simplicity of operation.

Better engines, single-engine safety, ease of operation—we lo forward to even greater strides forward in these fields in the mont ahead.

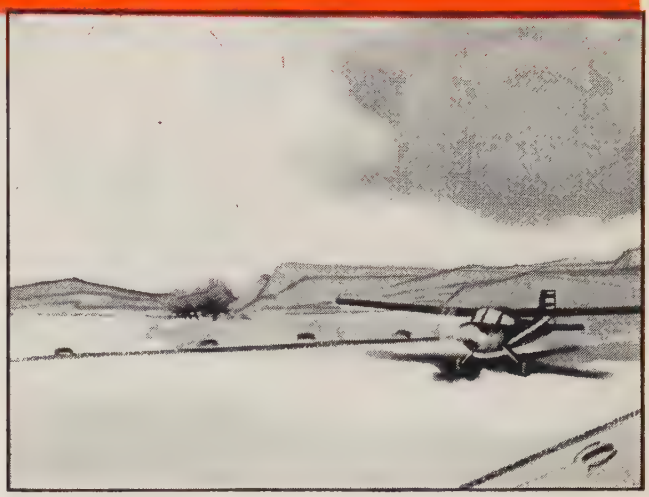
Roy L. Stro

Esso

WING TIPS



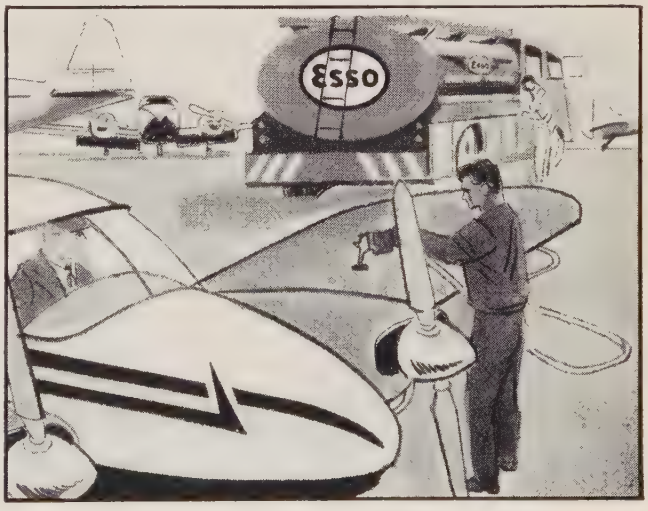
GUSTY DAYS. Make your climb more gradual and maintain extra air speed. Gusty winds can cause not only variations in wind velocity and direction, but irregular vertical air currents, too. One, or a combination of these factors, can result in a stall if you don't keep a safe margin of air speed.



HOT, HIGH & HUMID. High temperature, altitude and humidity all make for low *air* density, thereby decreasing wing lift. When these conditions exist, be sure to allow for a longer take-off run, and (or) a lower take-off weight.

HIGHER OCTANE. An octane number is simply a means of measuring a fuel's anti-knock capabilities. So remember – if your aircraft engine is tagged for a minimum of 91-octane, and you land at an unfamiliar field that carries only 100-octane, feel perfectly safe in using it.

REMEMBER. For "Happy Flying"... look for the famous Esso Sign, trademark for more than 600 dependable Esso Aviation Dealers.

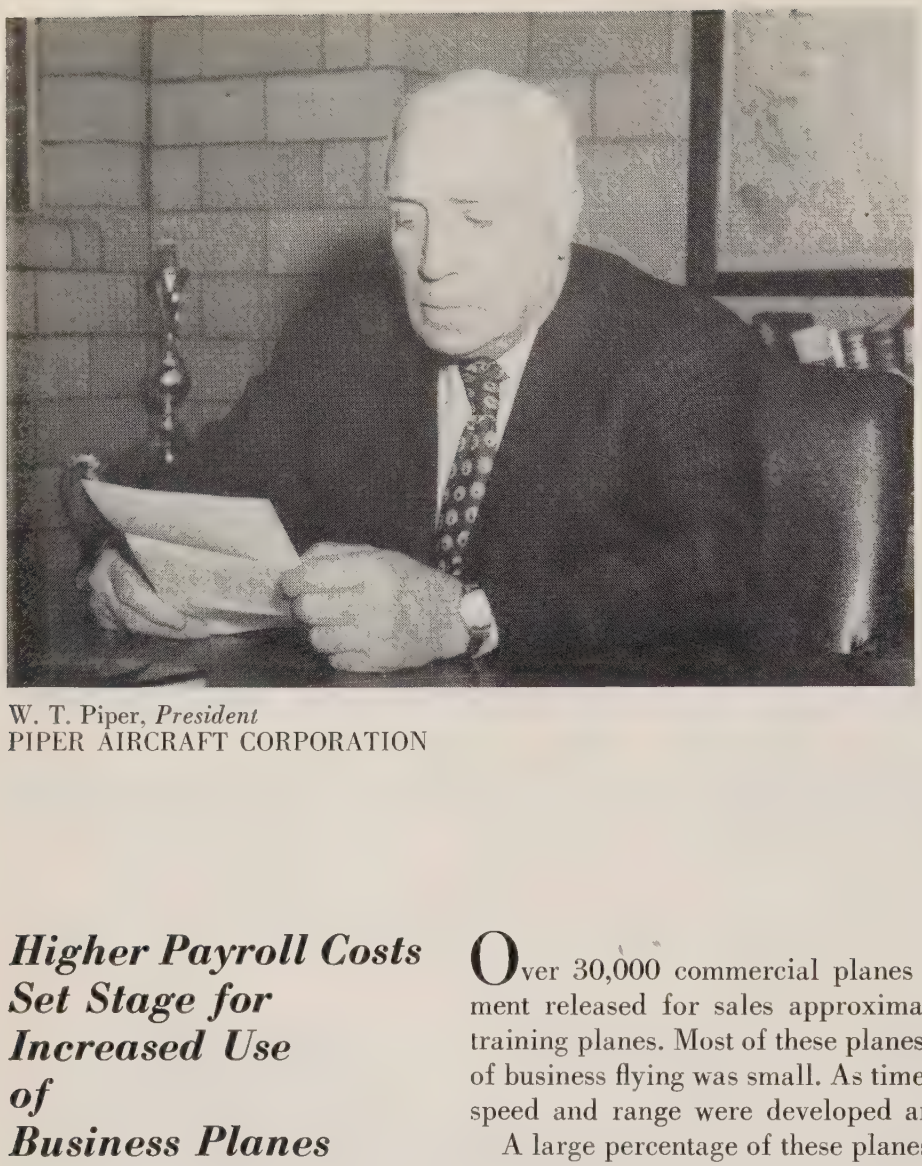


FUELS. No matter what type of airplane you fly, you'll find an Esso Aviation fuel especially designed to give your engine better performance and longer life. That's because all five Esso Aviation gasolines – from 80 to 115 – are carefully balanced to give your engine the utmost in power and economy, and all Esso fuels contain an *anti-oxidant*... to keep your engine *cleaner, longer.* So next time you need aviation fuel... be sure to get Esso, and you'll be getting the best your money can buy.

ESSO RESEARCH works wonders with oil

ESSO STANDARD OIL COMPANY

Circle No. 10 on Reader Service Card



W. T. Piper, *President*
PIPER AIRCRAFT CORPORATION

Higher Payroll Costs Set Stage for Increased Use of Business Planes

Over 30,000 commercial planes were made in 1946. The goverr ment released for sales approximately the same number of surpl training planes. Most of these planes had little utility hence the amou of business flying was small. As time passed, larger planes with greate speed and range were developed and business flying began to gro

A large percentage of these planes had only one engine, but recentl several excellent twin engine planes have been built and are provin very popular. The dispersal of industry has greatly increased th amount of executive travel, and the high salaries now being paid mak it uneconomical for valuable employees to use slower transportatio More and more advantages of air travel are being recognized, whic assure our industry of continued growth.

The development of business flying has been greatly retarded b lack of airports. 50 years ago there was not a single airport. Toda while we have excellent airports in the larger cities, a large number c small towns have no landing fields. It was once considered necessar to have multiple runways, but single strips have proved very satisfa tory with the tricycle landing gears, which are now almost universall used.

Thousands of towns that could not afford a large airport can no afford a small grass strip; this strip should be within walking distanc of the town. Dirt roads were used by the automobiles for years unt traffic was heavy enough to justify hard surfaced roads. When a vantage of the tendency of planes with tricycle gears to go straig ahead is taken and thousands of small grass strips are built, airplan will become useful for short trips. The increase in general aviatio will then be phenomenal.

W. T. Pip

Mundy I. Peale, *President*
REPUBLIC AVIATION CORPORATION

ow Maintenance-to-Flight Time Ratios—
A Breakthrough in Total Helicopter Utility

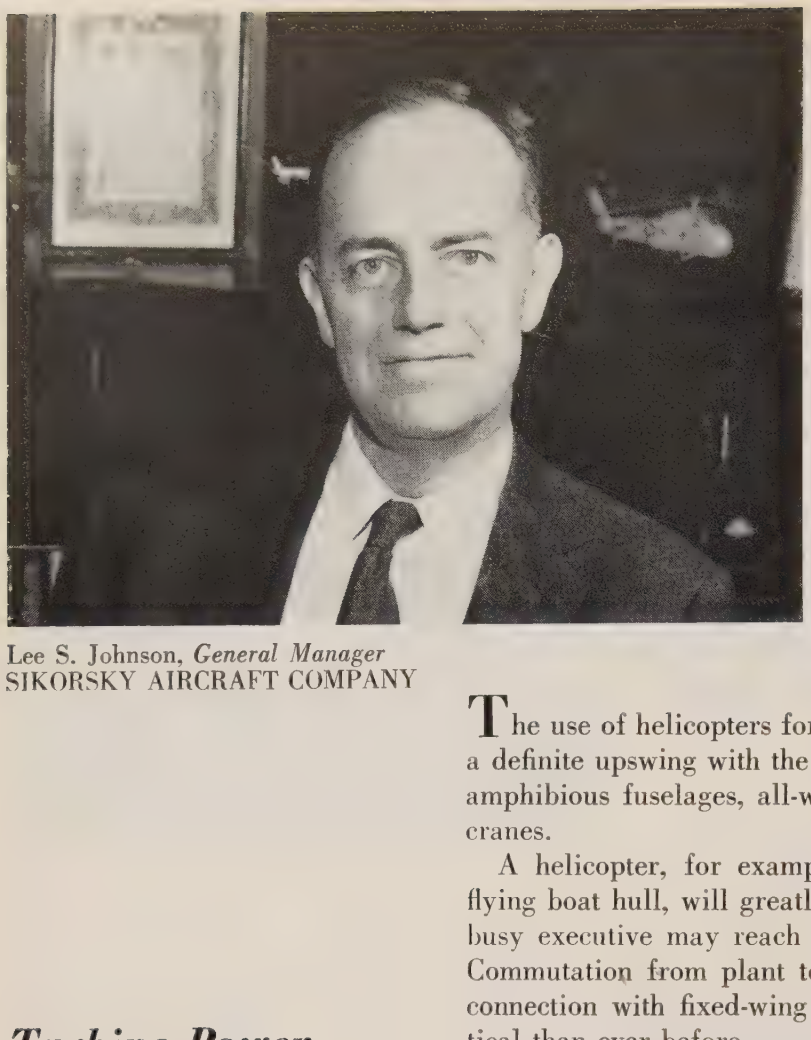
Although many American corporations own or lease one or more xed-wing aircraft, the concept of helicopters for executive transport still comparatively new. Studies indicate that within the 150-mile adius, helicopters provide the most practical and economic form of xecutive air transportation.

Typical applications would exist for plants within that distance of a etropolitan area or multi-plant complexes within a radius of 150 iles. Helicopters like Republic's turbine-powered Alouette II carry our passengers in addition to the pilot at cruising speeds of 100 miles n hour. Additional value is obtained from company-owned helicopters n short liaison and fast freight flights.

Of course, the value of air transportation is accepted today. Like xed-wing aircraft, helicopters provide speed and freedom from traffic estrictions. Unlike fixed-wing craft, helicopters require only small elispots and need not rely on remote landing strips.

Principle drawback to the widespread utilization of the helicopter in ecent years has been the unfavorable maintenance-to-flight-time ratio. Development of turbine-powered helicopters with their inherent simplicity has overcome this difficulty. Turbine power also gives the executive helicopter a smoother, more comfortable ride at greater economy.

Mundy I. Peale



Lee S. Johnson, *General Manager*
SIKORSKY AIRCRAFT COMPANY

Turbine Power . . . A Big Step Forward in Business Helicopter

The use of helicopters for business and industrial flying should take a definite upswing with the advent of lightweight gas turbine engines amphibious fuselages, all-weather capabilities and specially-designed cranes.

A helicopter, for example, combining the turbine engine with a flying boat hull, will greatly increase the number of places which the busy executive may reach directly by air, and in complete comfort. Commutation from plant to plant, or between plant and airport for connection with fixed-wing aircraft should be faster and more practical than ever before.

Turbine power for helicopters will provide a number of vital advantages. The lighter weight and higher power will be readily translated into increased payload. There will be lower noise levels and less vibration. The use of gas turbines in multiple units will further enhance the helicopter's inherent high safety factor. Maintenance and operating costs should be lower.

Of vital significance to the flying businessman is the fact that all-weather operation of helicopters is at hand. Automatic stabilization equipment, somewhat similar to the autopilot of fixed wing aircraft, has been certificated by the CAA for commercial operation. This equipment, proven in over 100,000 flight hours of Navy HSS-1 helicopters, is a basic step toward operation of helicopters under instrument conditions. Other progress—including automatic hovering and landing devices—will make the helicopter a truly all-weather vehicle.

Sikorsky Aircraft has pioneered during the past year in proving the helicopter's prowess as a flying crane. Operating in rugged mountain areas, an S-58 has installed power transmission line towers and poles and even *poured ready-mixed concrete from the air*, completing in one or two days jobs that require weeks and months by conventional methods. Development of the flying crane, particularly with multiple turbine power, will further increase the helicopter's usefulness to industry.

To summarize: we at Sikorsky feel that the accelerating efforts in the foregoing developments will greatly enhance the future of the helicopter for business and industry.

Lee S. Johnson

AC Aircraft Spark Plugs make it Three in a Row!

Frances Bera pilots AC-equipped Beechcraft to first place in transcontinental Powder Puff Derby.

1956–1957–1958 saw AC-sparked planes take first place in the famous Powder Puff Derby!

This year "Fran" Bera, right, and her co-pilot Evelyn Kelly, outflew a field of 69 planes in their Beechcraft Bonanza. Mrs. Bera, in winning her fourth Derby, covered the 2,177 statute miles from San Diego to Charleston at an average ground speed of 177 m.p.h.

Mrs. Bera, who has logged more than 8,000 hours and is one of the few women CAA Commercial Flight Examiners in the country, was high in her praise of the AC SR-83P platinum electrode Spark Plugs, "They performed perfectly every mile of the race—fast starts—full-powered take-offs—carefree cruising! They didn't give us one anxious moment. The best I can say about AC Aircraft Spark Plugs is: 'I was first with them—they're first with me!'"

Get winning performance from your plane—install a new set of AC Aircraft Spark Plugs! Get them from your AC supplier, TODAY!

Flying starts with

AC

AIRCRAFT SPARK PLUGS

AC SPARK PLUG

THE ELECTRONICS DIVISION OF GENERAL MOTORS

SR-83P ILLUSTRATED

DISTRIBUTED BY: **Airwork Corporation:** Millville, New Jersey; Miami Springs, Florida; Newark, New Jersey; Atlanta, Georgia; Alexandria, Virginia; Cleveland, Ohio. **Pacific Airmotive Corporation:** Burbank, California; Seattle, Washington; Oakland, California; Kansas City, Kansas; Denver, Colorado; Linden, New Jersey. **Southwest Airmotive Company:** Dallas, Texas, Kansas City Kansas, Denver, Colorado **Standard Aero Engine Ltd.:** Winnipeg, Manitoba, Vancouver, B.C., Edmonton, Alberta **Jon Dusen Aircraft Supplies, Inc.:** Chicago, Illinois; Minneapolis, Minnesota, Teterboro, New Jersey, East Boston, Massachusetts, Alexandria, Virginia, Richmond, Virginia, Miami, Florida

Circle No. 11 on Reader Service Card

Francis J. Trecker, *President*
TRECKER AIRCRAFT CORPORATION

High Performance Amphibious Air Travel Approaches Maximum Utility

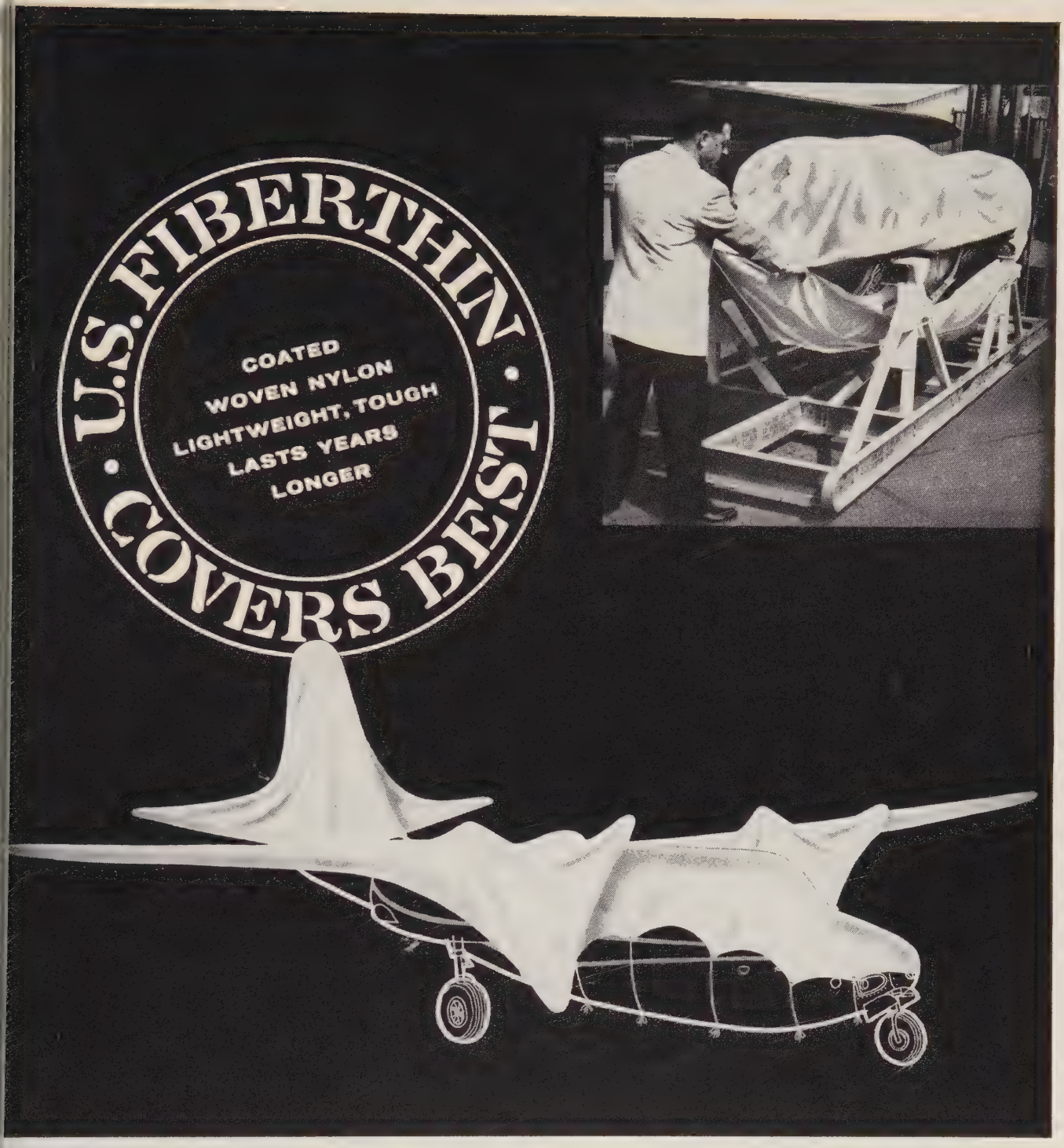
There has been tremendous interest generated in recent months ove the many advances in aircraft currently being planned by leadin manufacturers, most of whom are associated with military constructio and, thus, are able to combine features designed for the military int airplanes which will be made available to corporate users.

In the excitement of contemplating these new and tremendously advanced planes, one may tend to minimize the importance of the ligh twin engine, piston powered plane which is in use today, and which w believe will be the mainstay of corporate aircraft usage for man years.

These new, glamorous, high speed aircraft are nerve tingling and desire invoking to 95% of all of us using airplanes for business trans portation; however, it is very important to realize that they are within the financial means and the practical business necessity afforded and needed by only a few percent of the corporate market.

The design of the light twin engine, piston powered aircraft shall go forward providing greater comfort, safety and convenience. The days of flying for the thrill are long gone. The businessman and his customers, including feminine passengers, are making it necessary for aircraft designers to give them the same conveniences and comforts which they find in other modes of transportation, and transportation is, of course, the main purpose of corporate aircraft. It is no longer a speedy flight on wings which the public wants, it is a flight requiring physical comforts as well. These requirements and necessities our light twin engine aircraft are being designed to recognize.

Francis J. Trecker



U. S. FIBERTHIN®—MINIMUM WEIGHT...NON-ABSORBENT...STOWS AWAY COMPACTLY

Here is an all-weather protective covering that can't be matched for use in the aircraft field. U.S. Fiberthin is a remarkably light protective fabric yet it is far superior in tear strength. Woven of ribbon-like threads of durable nylon, coated with vinyl or neoprene, this modern covering fabric will not absorb water. It protects against rain, snow and sleet...stands up under gale-force winds. Extra light and easy to handle...stows away neatly in your plane. Available in a range of colors. U. S. Fiberthin also provides perfect protection for shipping airplane parts —as shown in the photo of the motor cover above. Ask your supplier for U. S. Fiberthin...or write for information.

U. S. Fiberthin Air Seal jet engine cover shown in photo above fabricated for Boeing Airplane Co. by Seattle Tent & Awning Co., Seattle, Washington

United States Rubber

Mishawaka, Indiana

Circle No. 19 on Reader Service Card

67 TROMBONES MAKE MORE FANFARE THAN NEWARK AIR SERVICE

. . . no drums, no trumpets . . .
but a medley of services for those whose moments are valuable!

A customer of Newark Air is doing us a favor when he calls. He brings us his wants — it is our job to fill those wants.

Like a well mixed martini, ours is a blend of three fundamentals: anticipating your arrival — being "on time" with your personal or aircraft requirements . . . and helping you to maintain your schedule with dispatch!

Into our tuneful medley, we add the ingredient of enthusiasm in customer services for the man on the move: Around the clock, N.A.S. delivers complete, efficient terminal, maintenance, storage and refueling services.

Need a convenient conference room; seeking rail, air or hotel reservations . . . or weather teletype information? Multiple services are here, or, can be quickly arranged. At your command, you find too, all the superb facilities that (EWR) Newark Airport offers.

NAS

NEWARK AIR SERVICE, INC.

HANGAR NO. 12 *Newark Airport, Newark, New Jersey* MARKET 2-5128

Airmar Radio Service, Inc.
Auth. Cessna Dealer
National Weather Forecasting Corp.

Circle No. 20 on Reader Service Card

FACTS - vs - FANCY

In the closing days of World War II, it was popular practice to speak in glowing terms of the immediate future of personal and business flying. Thousands of young men had been trained as pilots in our wartime need. It was unthinkable that these young men would not have an unconquerable urge to put this new talent to work in earning a living, unleashing the growth possibilities of a business, or just adding a new dimension to the enjoyment of their lives.

On this bright premise, a small percentage swept into airline pilot jobs, some more ambitious characters banded together to snap up available surplus, war-weary C-47's to form new additions to the public transportation field. A few of these were destined to withstand the pressures of the outraged airlines, others fell by the wayside mostly due to the incorruptible laws of supply, demand and competition.

The brightest spark of all, the anticipated rush into the ranks of pleasure and personal business flight, flared only momentarily and then sputtered like a wet match. Many who tried, with varying degrees of enthusiasm, were quickly disillusioned by the costly inefficiencies and headaches of war-surplus training aircraft dumped so cheaply on the market as to drive many of the smaller aircraft manufacturers to the wall. Additionally, it was necessary to make vast improvements in navigation techniques and facilities (to combat the great enemy—weather, and to reduce the pseudo-scientist approach to navigation of the "E6B" and "A/N" diagnostician to easily-read road signs in the cockpit). It was necessary to eliminate the surgeon's skill required to safely get an airplane off and on the ground in uncooperative wind conditions. And it was necessary to design airplanes—and engines to power them—that did not bankrupt the small businessman or bring the wrath of the stockholders down about the ears of the corporation executive. Seat-mile costs became as important as cruising speed! Management man-hours was the new equation on the computer.

But, the outstanding FACT that was to change the picture from that of an executive toy or a tax-deductible method of reaching far-distant vacation spots as FANCIED by some critics, was the emergence of THE PROFIT MOTIVE! Some far-sighted companies and small businessmen early recognized that TIME and freedom of movement implicit in the business airplane were commodities that could not be as successfully combined in any other available means of transportation. As business competition increased, the performance and seat-mile statistics of wholly-owned and controlled business aircraft achieved new importance.

Faster and uninhibited travel for high-salaried executives and other key personnel has been joined by a myriad of other cost-cutting and profit-garnering uses of aircraft. Every day brings announcements of new capabilities of this business tool. From flying showrooms to pouring cement from helicopters in otherwise impossible places, the airplane is forging a new future for American industry. Yet the greater strength of business aviation remains in the field of personnel transportation. In the following pages, SKYWAYS has selected at random some of these uses of business aircraft to illustrate this new force in our economy. A.E.G.

FACTS - and - FIGURES

U. S. CIVIL AIRCRAFT (as of January 1, 1958, CAA estimate)

Number of Places	Active	Inactive	Total
Single-Engine			
1 and 2 places	33,830	17,058	50,888
3 to 5 places	24,629	5,918	30,547
over 5 places	107	57	164
Multi-Engine			
1 to 8 places	3,292	1,455	4,747
9 to 20 places	1,252	227	1,479
21 to 50 places	959	166	1,125
over 50 places	1,277	220	1,497
Miscellaneous	1,807	935	2,702
Totals	67,153	26,036	93,189

ACTIVE BUSINESS AIRCRAFT (as of January 1, 1958, NBAA estimate)

By Class:

I	**Multi-Engine** (9-place and over)	1,041
II	**Multi-Engine** (under 9-place)	2,304
III	**Single Engine** (3-place and over)	13,852
IV	**Single Engine** (1 and 2-place)	8,796
V	**Miscellaneous**	155
	Total	26,128

Above: **OCCASIONAL FAMILY USE** *improves employee relations.*
Left: **CAREFUL PRE-FLIGHT** *planning reassures family.*

PRINTER BEATS DEADLINES BY AIR

A single-engine airplane can be just as difficult to sell a board of directors as an $80,000 light twin if they are money conscious in a small business. This is the comment of Gifford M. Booth, Jr., president of the Grit Printing Company in Wichita, Kansas.

Booth, a widely known midwest printer, encountered this situation when he discussed the possible purchase of a new airplane with his board in 1952.

"They were finally convinced that it would be an interesting experiment, so we made the purchase of a Cessna 170 in late 1952," Booth adds. The airplane proved so valuable in carrying on the company's business that it was traded for a new 170 in 1954 and a new Cessna 182 in 1956.

Booth says the utilization of the airplane has increased to such an extent that the company now needs another airplane and is strongly considering the purchase of a second plane in the near future.

During the past two months, the company has spent over $1,000 on airplane rental fees. Booth explains that one day recently, the company plane was on a trip to St. Joseph and Kansas City, Mo., and Lincoln, Neb. The same day, urgent business came up in Tulsa, Okla.; Fayetteville, Ark.; and Rogers, Ark. As a result, Booth had to rent an airplane to make the trip. While he was gone, another salesman had urgent calls from Bartlesville, Okla. and Tulsa, which resulted in the rental of a second airplane. "We find that our clients in other cities frequently need immediate attention and our company plane may be out on another trip just as important," he adds.

"Experiences like these have convinced us we are in bad need of a second airplane," Booth says, "and we are planning to buy another plane just as soon as we can."

Booth also points out more customers in outlying areas are calling for immediate service. "If we want to continue expanding our business, we give them the type service they want when they want it," he says. "To do this," he continues, "we simply must have a second airplane."

When Booth purchased his first airplane, he didn't know how to fly, but it didn't take him long to learn. In only a few weeks, he had a private license and was making good use of the airplane. In 1953, he hired two salesmen who were pilots to meet the needs of his expanding business. He later taught two additional sales and management people to fly and now has six on his staff who fly and utilize the company plane in their work. The company plane travels over 75,000 miles annually.

In 1951, the Grit Printing Company did $475,000 in sales volume. The company was limited to covering Wichita and surrounding area of about 100 miles. "We wanted to cover a greater area to expand our sales volume, but we just couldn't do it," Booth says. "Salesmen were spending too much time driving around the territory and not enough time selling. They were running into problems at home as a result of spending too much time out of town. At the time we couldn't afford to hire the additional salesmen," he adds.

As soon as the company purchased the airplane, the same salesmen were covering a much greater territory in a fraction of the time. They are seldom out overnight and this makes a big difference in their family relationship at home.

Some of them even take their wives and children along on short trips and drop them off enroute to visit friends or relatives while the husbands transact business. "This has made the wives feel more a part of the organization and share an interest in their husbands' work," Booth continues.

By covering additional territory, Grit's sales jumped to $600,000 in 1953 and was over $1,000,000 in 1957. "We managed to top $650,000 during the first six months of 1958 and expect to beat our record year of 1957 by a substantial margin," Booth adds.

Pointing out that the airplane has expanded sales territory and potential, Booth outlined a recent trip made by one of his salesmen, who left Wichita in the company plane and spent eight working days in the field. "While the duration of this trip is unusual, it certainly illustrates what could never have been attempted by any other means of transportation," he added.

The salesman left Wichita and made calls in St. Joseph, Mo.; Minneapolis, St. Paul and a small town in northern Minnesota, Kenosha; Milwaukee, Chicago, Cleveland, back to Chicago, Cedar Rapids, Des Moines, St. Joseph, Kansas City and Wichita. "Without an airplane, we would have never made such a trip," Booth stated.

In one city, the salesman picked up an order for 100,000 direct mail folders. "This alone paid for the entire trip and doesn't take into consideration the excellent contacts we made in other cities," he stated.

Booth figures the cost of operating the airplane is about $20 an hour, which includes gas, oil, maintenance, depreciation, hangar and storage and other miscellaneous costs. This amounts to approximately 13¢ per mile.

Booth and his organization are proud of their airplane. In the company's trade advertising, a picture of the airplane's nose is shown with a slogan which reads, "This is the prop that pulls the plane that beats the salesman who takes the

(Continued on page 78)

OU FEEL LOST *in the Tri-Pacer sometimes. ere I'm taxing along the ramp at Wright FB in Ohio. Behind me is the C-124 lobe-master with a C-123 Avitruc in the reground.*

AT EGLIN AFB, FLORIDA, *on Armed Forces Day, the Piper drew surprised spectators.*

I Practice What I Preach

by Martin Caidin

he author:
Winner of the Aviation Writers Association 1958 James J. Strebig Memoal Trophy, Martin Caidin authored ich well received books as Air Force: Pictorial History of American Airower, Vanguard!, Count Down For omorrow and many others. He is qually well known as a very successful ontributor to both aviation and general ublications. Herein we reveal that he also very active as a throttle-bender; e., an aviation writer who practices hat he preaches!

One of the strange paradoxes about aviation writing is that so few writers ever use the equipment of their hosen profession in their work. I know of men who have written in aviation for years; they're excellent reporters, hey have flown in many types of aircraft, and many of them re licensed pilots. But outside of two or three of these writer-ilots, the rest of the field seems to ignore the use of perhaps he most valuable tool of all—the business airplane.

To gather information and to discuss with military and ndustrial officials my needs for three new books, PROJECT AIRPOWER, The War For The Moon and one on the Air Force Missile Test Center, I found it necessary to make exensive tours of military installations. Exactly *how* to get rom all these bases to other stops—*quickly*—was the roblem.

As an accredited correspondent, I could fly aboard military ircraft on a space-available basis. But this is perhaps the *lowest* means of transportation if you have a great many tops to make. I could fly commercial airlines; however, this vould cost a small fortune, leave me at the mercy of airline chedules and, often, leave me with the problem of getting rom commercial fields to the military facility I had to visit. The thought of driving long thousands of miles left me ill.

There was only *one* sensible way to accomplish my purose—the business airplane. After negotiations with Washngton, permission was granted on a prior-notification basis o visit the military bases selected—with the exception of SAC fields, where civilian aircraft of this type are faced with a large KEEP OUT sign.

The Piper Tri-Pacer was perfect for my needs. It had range sufficient to permit either non-stop or single-stop flights from one base to another. With my artist-photographer, Mel J. Hunter, and all our equipment, the plane was more than adequate in the way of room. A Narco Superhomer met our communications needs—I transmitted to the military towers on 121.5 mc and received on 126.18 Baker Channel.

The economy of the various legs of our survey flights was unbelievable. On one trip, with a third passenger aboard, we flew a zig-zag, many-stop course—the equivalent of a flight from New York to Houston, Texas—for a total expense in gas and oil of barely forty-three dollars. That worked out to less than $16 per person!

In the several months, with return trips to New York, that we toured military facilities, the Tri-Pacer made possible a detailed and exhaustive research effort that was flatly impossible in any other way. Certain military fields couldn't service us with the fuel grade that the Piper required, but it was little or no trouble to select a nearby private strip where we landed, gassed up, and took off again in a few minutes. In our first three months of flying the Tri-Pacer proved itself a marvelous and absolutely reliable machine; our only difficulty came with a loose radio antenna, which we had repaired during a pleasant stayover at Tamiami Field, Fla.

The several months of flying to research PROJECT AIRPOWER taught me a lesson—that I had ignored for too many years the best facility possible in my field. The personal plane proved the fastest, the most economical, and the safest means to accomplish all the work we had to do.

To say nothing of the ball we had all the way. Of course, the survey flights did spoil us some. How many times does a Tri-Pacer pilot ever get the chance to land on a twelve thousand foot runway!

Capt. Boling with
His Single Engine
Beechcraft Bonanza

"I made my 6,856.32 Mile Record Flight for Light Planes Navigating with ARC's Type 21-A ADF" reports Capt. "Pat" Boling . . .

TYPE 21A ADF WEIGHS ONLY 19.7 POUNDS

Component Unit Weights:

Receiver, 6.8 lbs.; Loop, 4.3 lbs.; Loop Housing, 0.5 lbs.; Indicator, 1.3 lbs.; Control Unit, 1.6 lbs.; Power Unit, 5.2 lbs.; CAA Certificate No. 1R 4-9 U. S. Military: AN/ARN-59 British Certificate of Approval VC-78

On August 1st, 1958, Captain Marion ("Pat") Boling landed at Pendleton, Oregon, after a non-stop flight from Manila, P. I.—a distance of 6,856.32 miles in 45 hours and 42 minutes, thus establishing a new long distance record for light aircraft. His plane was a single engine Beechcraft Bonanza.

"My navigation", says Captain Boling, "was accomplished almost entirely with an Aircraft Radio Corporation Type 21-A Automatic Direction Finder. At check point after check point this instrument functioned perfectly. The dependability of the ADF all along my route gave me a real feeling of confidence."

More and more pilots all over the world, over land and water, depend on the accuracy and reliability of the A.R.C. Type 21-A A.D.F. See your A.R.C. dealer or write us for complete descriptive data.

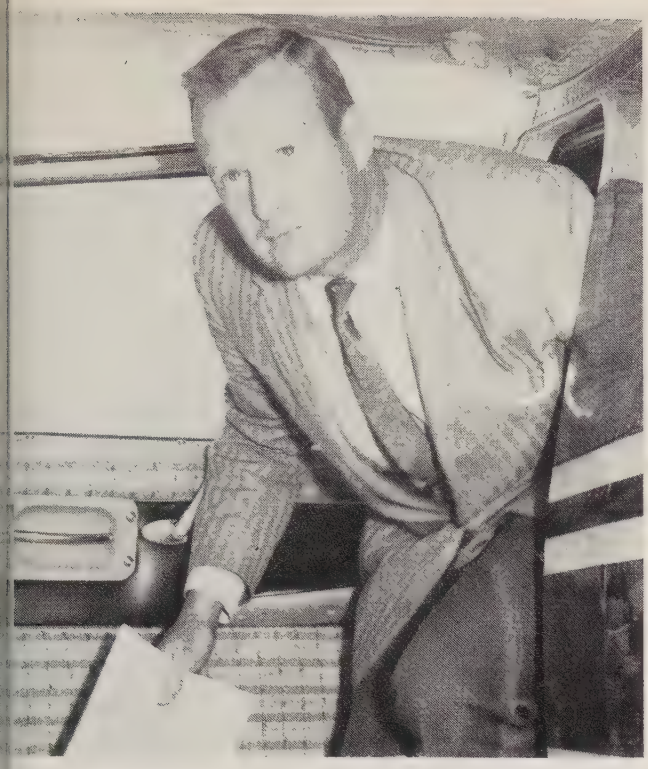
Dependable Airborne Electronic Equipment Since 1928

Aircraft Radio Corporation BOONTON, N. J.

OMNI LOC RECEIVERS • MINIATURIZED AUTOMATIC DIRECTION FINDERS • COURSE DIRECTORS • LF RECEIVERS AND LOOP DIRECTION FINDERS
UHF AND VHF RECEIVERS AND TRANSMITTERS (5 TO 360 CHANNELS) • INTERPHONE AMPLIFIERS • HIGH POWERED CABIN AUDIO AMPLIFIERS
10-CHANNEL ISOLATION AMPLIFIERS • OMNIRANGE SIGNAL GENERATORS AND STANDARD COURSE CHECKERS • 900-2100 MC SIGNAL GENERATORS

Circle No. 21 on Reader Service Card

30 YEARS OF ACHIEVEMENT 1928 ARC 1958 IN AIRBORNE ELECTRONICS



PETROLEUM SURVEY FIRM LINKS 40 OFFICES IN SMOOTH-FLOWING CHAIN

H. John Eastman, President and founder of the Eastman Oil Well Survey Company, has always been a confirmed believer in airplanes for business. He has used aircraft in his company for over twenty years.

Summing up his need for air transportation he says, "I have over 300 employees which isn't a great number, but unlike many businesses where their people are located in one building and their customers come to them for their services, my people are spread all over the world and we go to our customers. For Eastman Oil Well Survey Company it's a must to have our own air transportation."

The Eastman Aero Commander isn't occupying hangar space very often. Chief Pilot S. S. Roszel, Jr. is often taking off on a jaunt that may cover an area from Calgary, Canada, to Houston, Texas, or from the Illinois-Indiana Basin to the Pacific Coast. Besides being Chief Pilot, Roszel is also Assistant General Sales Manager for the oil well survey company, famed for its activities in directional or crooked hole drilling.

Based in Denver at Stapleton Airfield the plane is always ready at a moment's notice just as pilot Roszel is. Maintenance Director Ken Beyeler keeps the Commander in tip-top condition for these quick trips and often accompanies the plane.

Eastman's Aero Commander is considered a very valuable tool that is absolutely necessary in the Eastman operation. It is used for customer relations work, job checking in the field and for fast delivery of tools and instruments that might be needed in a hurry on an oil rig to pull the drillers out of trouble in some remote area.

An example of the capabilities of the Commander is a recent trip to a drilling site located in a remote area of Utah. From Denver the trip by automobile takes from ten to twelve hours of solid driving. In the Commander the distance was covered in a matter of one hour and ten minutes.

On the same trip, equipment needed by the Eastman engineer on the rig drilling job was carried in the airplane. Equipment that was no longer needed on the job was returned on the Commander to the Denver shops of the company for reconditioning and availability for another job in some far away area. Over 500 pounds of air freight was transported to and from the job in Utah. An inspection of the job, which gave the customer confidence in the company's ability to do a job right, was accomplished in one day's time.

And that isn't all.

With the Aero Commander time was saved in getting to the rig site once the plane was in the area. The nearest airport is thirty miles distant, which would mean auto transportation and truck transportation for the equipment. Instead, the Commander was landed on a bull dozed dirt landing strip right next to the rig! No time wasted on this job, and the customer was impressed at the sight of the slick aircraft taxiing right up to the oil rig.

In his long years of experience as an aircraft user H. John Eastman has had all types of aircraft including a Twin-Beech and Lockheed Lodestar. The new 680S Aero Commander replaced the Lodestar in March of this year.

For convenience on longer flights the Eastman Commander has a custom built card table by Horton and Horton of Ft. Worth, Texas, which allows busy executives to do paper work in flight. It neatly collapses and folds away into a special compartment on the port side of the cabin. Besides the two front seats in the pilots' compartment three other passenger seats are installed.

Operating limits of the Eastman company plane are all day and night VFR and occasional day IFR flight operations. It is not unusual at all to operate above 20,000 feet altitude on a Denver to Los Angeles nonstop flight.

In addition to the custom and standard equipment installed by the factory the following navigational and communications equipment has been added to the Aero Commander. ARC 15D Omni, ARC 21 ADF, Narco 360 Channel Sapphire Transceiver, Three-light Marker Receiver, Glide Slope Receiver and Narco Mark II Omnigator. This gives adequate facilities for normal instrument operations with the use of the dual Omni, ADF and ILS radio installations.

When an operator of a drilling rig has a break down he knows that minutes of inactivity add greatly to the cost of the job. He wants a trouble shooter on the spot as soon as possible. Getting him out of trouble is the business of the Eastman Oil Well Survey Company, and to assure that driller of on-the-spot service Eastman depends on air travel. Whether it be a dirt strip in a remote mountain area or a busy municipal air terminal, the Eastman Aero Commander is ready to go and there is confidence in its ability to carry out the job.

MAIL ORDER WINGS

With the exception of some unusually big corporation fleets, the Sears, Roebuck & Co. operation is typical of the many large business aircraft users. How they transport the company's executives safely, comfortably and on schedule, whether it be a one-day flight or a three week foreign trip, is told here. In many ways, this could be classified as a privately-owned air line!

CHECKING LOGBOOK *before flight, (left to right) are Quent Mohr, co-pilot mechanic; Charley Russell, charge of maintenance; and Vic Swanson, Sears Roebuck and Company chief pilot.*

If a TV-quiz show contestants were all asked to name the first mail order department store that came to mind, it is an odds-on gamble that virtually all would say "Sears Roebuck" without hesitation. This famous company has for generations increased and expanded both its mail order business and retail outlets by always staying ahead of its competition, employing all the latest and best techniques to attract and efficiently serve its customers.

It was no gamble therefore when Sears decided that ownership and operation of its own fleet of aircraft would benefit the overall operations of the business. In a recent year, 1957, the five Sears planes flew almost 2000 hours and almost 2 million miles at a total cost of under $500,000. About 40% of the cost was chargeable through the company departments for passenger fares, which are based on comparable airline fares. Load factors have been good, averaging 9-10 passengers on DC-3s. A profit and loss statement is run on each plane, and this year a formula is being used to figure the dollar value of executive time saved.

The aircraft, 3 DC-3s, a Lodestar and a Twin-Beech D18S are operated by territory with two assigned to the Chicago home office. The latter include a DC-3 that averages 600-700 hours per year, flying virtually anywhere in the hemisphere, backed by the D-18S covering the Midwest and East. All of the pilots have had both military and airline experience. The co-pilot mechanics do all maintenance including 100-hr checks. Major work and modifications are contracted to executive aircraft maintenance centers. An extra Chicago crew serves to provide vacation relief throughout the fleet.

Flight proficiency is kept up by Link training, hood practice, an annual CAA check and annual line check by the chief pilot, J. V. Swanson. A company physical as well as the CAA annual is required.

Each plane has a full complement of dual electronic equipment for "all-weather" operation, all but the D-18S having radar and autopilot. Company minimums parallel the published minimums for landing and takeoff limits are at the pilot's discretion. The DC-3s have P&W -94 engines and have been modified to up their cruise to 200 plus. All aircraft are being marked with Day-Glo for safety.

A majority of trips are purely company operations trips to stores and source factories, plus some public relations and employee benefit flights.

In a typical trip, the Chicago-based DC-3 flew 10 merchandising executives through eight midwest cities in four days. In the four days, over twenty-one hours of regular business time was afforded the ten executives without the necessity for spending over a week of night travel on trains or days of lost time adjusting to airline schedules and connections.

The Sears fleet may be added to very shortly by planes assigned to Canada and Mexico specifically and the DC-3s may be succeeded by either Convairs or one of the new executive turbo-prop aircraft.

FLYING BANKER CASHES IN WITH PERSONAL PLANE

by Walter G. Robinson

THE AUTHOR *shown in front of his earlier Cessna 170 with his own design "flying banker" emblem.*

Bankers seem to have achieved a reputation of being conservative. I do not agree with this viewpoint and find that the use of an aircraft in banking has been helpful in dispelling this popular notion.

As President of the Bass River Savings Bank at South Yarmouth, Mass., most of my bank flying duties are trips to the Islands of Martha's Vineyard and Nantucket about 30 miles from our main office off the South Shore of Cape Cod. Saving of time is the reason that I operate my own airplane, a Cessna 180.

The major economic activity in this area relates to the summer vacation period. Nine months of the year service to these islands by boat is operated on a minimum schedule, and other means of transportation are inconvenient or impractical for my purposes. A trip to Nantucket in the winter takes all day by ground-boat; by plane, I'm back at my desk by noon. Of course, other trips are made, too . . . Boston, New York, Chicago and Washington.

The plane has served advantageously for aerial photography, inspection of sites and other types of inspections related to our major bank activity of lending funds on mortgages.

The prompt service I have been able to provide my island customers has been impressive and resulted in new business for the bank and good public relations.

Many of my friends among the banking fraternity look askance at a bank President who engages in the "dangerous" activity of flying. There's that conservative bug. The main reason for this opinion is that most bankers in this area are unfamiliar with the versatility and value of the aircraft.

Weather is a major obstacle to flying in this area. But I have found that better than 90% of my appointments have been kept despite the frequency of inclement weather. I decided some time ago to obtain an instrument rating in order to make use of the aircraft more reliably as well as to improve the safety of flight. Possession of an instrument ticket has proved valuable. However, I do not imply that I am constantly flying single engine IFR, only when necessary. And there are many times when it is difficult to get in and out of an airport without filing IFR.

My '55 180 is equipped with cross-wind gear. I have dual omni, a Lear Omnimeter and transceiver and a Narco Mark II. The higher grouping of IFR frequencies is on the Lear transmitter and the lower grouping on the 27-channel Mark II. A standby Aerotron transmitter is hooked up to a Lear ADF 12D radio compass. Thus I have dual omni, dual VHF receivers, three VHF transmitters as well as low frequency receiver in the Lear-omni set and the ADF 12D. The panel is fully equipped for IFR operation. I have a Globe gyrostabilizer which I find helpful on long trips or when flying IFR alone. I have portable oxygen for long trips. I seldom use the aircraft at night except when returning from a meeting, and then I fly only when weather conditions are relatively good.

Undoubtedly, my cost of operation of the aircraft is higher by comparison than for many businesses which engage in relatively long flights. Nevertheless, I find that the cost is only about 20% to 30% higher than the use of an automobile or other means of transportation. The time that I am able to save and can consequently spend at my desk far outweighs any saving in expense that might be found by using other transportation means.

The Treasury ruling which recognizes the value of aircraft in business and permits expense accounting similar to that provided for other types of transportation has, of course, made the utilization of the airplane more practical and less expensive.

During the year, I find that 85% to 90% of my flying is for business. I feel that my aircraft provides our bank with one-and-one-third to one-and-one-half bank executives when compared with other methods of transportation.

LEASE OF BUSINESS PLANE — A PROFITABLE SOLUTION

by Donald Sidenberg

My business flying is done in a rented plane. The reason is simply—money.

In the last few years, medium and large companies have found that their own aircraft increase the availability of their personnel and the usefulness of their executives as well as bring distant offices and field locations closer to their home office.

But, overlooked in the general picture are the smaller companies who would operate their own aircraft if it were financially feasible. This is my case. Instead of being a "renter" I could be an "owner," if a modern one- or two-place plane were on the market embodying a range of 700-plus miles, a cruise speed of at least 150 mph, 100 lb baggage load and price about $11,000.

As a manufacturer's representative for The Sidon Co., covering the eleven western states for several eastern firms, I have reached the alternate solution which has proved feasible. Aircraft are rented for the period necessary to cover a planned route. This has proved financially sound and means also that I do not spend excessive time away from the home office in Los Angeles. It has been found that rental companies are cooperative with individuals who wish to rent a plane for an extended trip.

About a year ago, I approached George Wade of the Wade Air Service at Santa Monica with my proposal to rent a plane for trips of five to ten days duration. Because of the distance to be covered in the minimum amount of time, the most practical plane available was a Beech Bonanza with full equipment including ADF. Again, because of distance, the rental agency was very cooperative in providing a special rate, based on hourly time, and it has been determined since that a notice of a few days is all that is necessary to have a plane ready.

With Santa Monica as home base, a ten-day trip will consist of half days spent at Phoenix and Tucson, Ariz.; Salt Lake City, Utah; and Reno and Las Vegas, Nev. Two full days are spent at Denver, Colo., and three days at San Francisco. Fortunately, flying weather in this area is excellent most of the year and is rarely a determining factor.

This trip takes about 20 flying hours with no leg more than three hours duration. Early morning takeoffs are planned so that full days can be spent in the various cities concerned. For instance, a 5:30 a.m. departure from Tucson means being at a dealer's office in Albuquerque, N.M., at 9 a.m. Or, an 8 a.m. takeoff from Reno means a 9 a.m. arrival in downtown San Francisco.

Originally, automobile travel was attempted for this route but didn't prove practical because of an extra ten days required. Travel via commercial airlines was tried and, though at somewhat lower cost, valuable time was lost making connections—or, missing connections, with a resulting layover.

Routes are established so that no overlapping occurs as the chart-drawn course illustrates. Cost of this trip, based on ten days including rental of aircraft, meals, lodging and auto rental where necessary, amounts to approximately $58 per day. This figure is higher than airline transportation but offsets itself by convenience and availability.

There is no question that the airplane I use is the final answer, since the initial cost of the four-place craft requires that rental figures be considerably higher than if a two-place plane were available. However, this rental method can certainly be considered a success from the viewpoint of the small businessman travelling on his own—both from the financial aspects and from the speed and ease of transportation provided.

combined

VOR + ILS

IN A SINGLE INDICATOR

LEAR MODEL *40A7*

- Most complete
- Easiest to read
- Highest performance
- Lowest weight
- Lowest cost, too!

IMMEDIATE DELIVERY

only $295

Meets CAA TSO
ARINC Specs

SINCE 1930 *the finest* FLIGHT EQUIPMENT

See your dealer or
Write, wire or phone –

3171 S. Bundy Dr., Dept. SM · SANTA MONICA, CALIFORNIA

LEAR LEARCAL DIVISION

Circle No. 22 on Reader Service Card

SR. ESTEBAN A. BIRD, *Exec. Vice Pres., Banco Crédito y Ahorro Ponceño, boards Cessna 310 for business trip to his island clients.*

"FLYING DOWN TO RIO" hits a new note

With the recent acquisition of a new, twin-engine Cessna 310B, the Banco Crédito y Ahorro Ponceño, one of Puerto Rico's oldest and most progressive banking institutions, is setting a new pace in banking services at the Crossroads of the Caribbean.

The plane links the 23 branch offices which the "Crédito" operates throughout Puerto Rico. including its new Bankmobile, which serves several communities and the U. S. Naval Base, on the Eastern coast of Puerto Rico. This plane also links the Island of Puerto Rico with the Island of Vieques, where the Crédito has a branch office. A trip by boat to Vieques takes about two hours.

Bank officials told SKYWAYS that the plane has proved to be extremely useful to expedite the supervision of all branches, and to make more efficient the many services which the bank offers its clients. both locally and in the Continental United States.

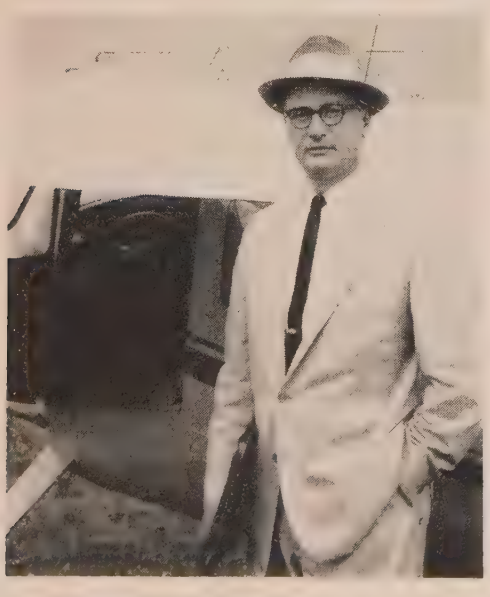
Among other things, the plane is used to carry cash and items of collection, and provides transportation to many of the Bank's industrial clients, thus resulting in effective public relations. The plane also expedites the transportation of Banco Crédito officials, from one point of the Island to the other, especially from the city of Ponce, a site of heavy industry where the Bank's central offices are located to the bustling Capital city of San Juan.

The plane was acquired in line with the Banco Crédito's progressive tradition of service, and the continued growth of the Puerto Rican economy, the officials stated.

The plane was purchased by the Bank last November. It was delivered at Wichita, Kansas, to Luis P. Pagán, the pilot who flew it via Miami to San Juan, covering a distance of 1,100 miles non stop, in five hours and forty minutes.

Since its arrival in San Juan, the plane has flown a total of 466 hours. The Banco Crédito aircraft is equipped with the following navigational aids: Two VHF radio transmitters and receivers, one HF, two ADF, one OMNI. oxygen equipment with five masks and an extra remote control compass.

The Crédito is the first bank in Puerto Rico to have ever used an airplane for business purposes.



Ad Exec Flies To Client's Aid

The answer to servicing widely-scattered clients is the private plane as far as Virgil LaMarre, MacManus, John & Adams, Inc. account executive, is concerned.

LaMarre, many years a pilot, has racked up more than 3.000 air hours in a series of planes including his present ship, a single-engine Cessna. His accounts which include divisions of Bendix Aviation Corporation, Fairmont Railway Motors and the Michigan Economic Development Department are located from New York State to Minnesota, some inaccessible by scheduled airlines.

On most trips, LaMarre says, the Cessna gets him there and back to the Bloomfield Hills, Mich., agency headquarters the same day and allows a full eight hours with the client.

"The account gets better service, and the agency saves time and money," he adds. LaMarre, whose flight training dates back to gliders in Bay City, Mich., more than 20 years ago, has a consuming interest in all aspects of aviation and has had a number of articles published.

CONVAIR
240
CONVAIR
340
METROPOLITAN
440

THE ULTIMATE IN EXECUTIVE AIRCRAFT!

and NOW-Canadair

540 TURBO-PROP

The announcement that the Canadair 540, the newest development of the proved Convair 240, 340, 440 series, is available as an executive aircraft, is *important news.*

For the first time here is a spacious, comfortable executive aeroplane combining built-in airline safety and turbine power.

Company officers and corporation pilots will appreciate the Executive 540's many advantages: its speed of 325 mph at 20,000 feet; its demonstrably lower cost of operation and maintenance; its quickness in and out of almost any airport; and its basic reliability backed by all the 6,000,000 hours of flying experience of the Convair series in military, airline and business use.

And here are other interesting features: a wide selection of custom interiors of your choice; assured servicing virtually anywhere in the world with readily available spare parts, as well as guaranteed engine overhaul prices; and engine overhaul and service on the North American Continent by Canadian Pratt & Whitney.

Canadair 540 turbo-props are now in production and the Executive "540" can be delivered in 1959. We will gladly provide complete performance data: please contact Canadair Limited, Montreal, Commercial Aircraft Sales Dept.

CANADAIR LIMITED

CANADAIR

Limited, Montreal, Canada

CANADAIR IS A SUBSIDIARY OF GENERAL DYNAMICS CORPORATION

CA58-CL66-86UST

Circle No. 23 on Reader Service Card

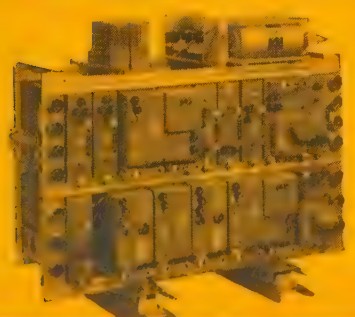
*34 Reasons Why It's Easy to Buy and Install *wilcox* CANARI Equipment in Your Business Aircraft

There are 34 authorized Wilcox CANARI equipment dealers throughout the world . . . one of them is bound to be conveniently located to your home base.

And every Wilcox Dealer is ready, willing and able to install a Wilcox CANARI system in your aircraft. Each has the facilities, equipment and technical skill necessary to install a complete system . . . or install individual units of CANARI equipment and make them compatible with your existing equipment.

See for yourself what Wilcox CANARI equipment can do to improve your communications and navigation system . . . improve your operating efficiency. Just stop in at your nearest Wilcox dealer's. Let him show you the advantages of this newest, lightest weight, smallest size equipment. Equipment that has been proved in use in hundreds of airline and business aircraft. Equipment that is CAA Certificated. Equipment that is pretested, in the rack, at Wilcox before it is shipped to your dealer. Equipment that is reliable . . . dependable . . . easily maintained.

Any one of the 34 authorized Wilcox Dealers listed welcomes your visit. If you desire technical specifications or more information prior to visiting your Wilcox dealer, just write, wire or phone:



wilcox
ELECTRIC COMPANY, INC.
Fourteenth and Chestnut
Kansas City 27, Missouri, U.S.A.

Complete Wilcox CANARI Systems are in use in these aircraft: Aero Commander, Beechcraft, Convair Metropolitan 440, and Douglas DC-6 and DC-7.

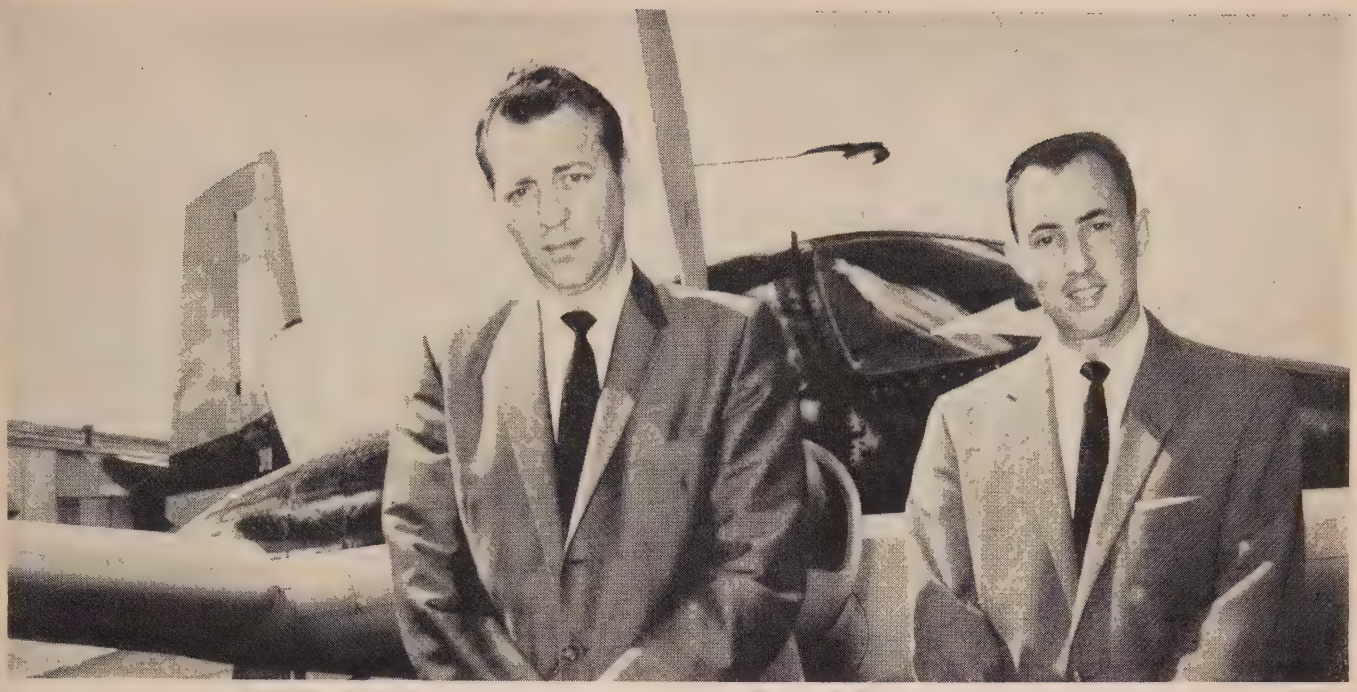
* Authorized *wilcox* Dealers

Aircraftsmen Oklahoma City, Okla.
AiResearch Aviation Service Los Angeles,
Allied Instrument Laboratories Houston,
Anderson Air Activities Milwaukee, Wis.
Atlantic Aviation Teterboro, N. J.
Atlantic Aviation Wilmington, Del.
Buffalo Aeronautical Buffalo, N. Y.
Butler Aviation Chicago, Ill.
Chamberlain Aviation Akron, Ohio
Clinton Aviation Denver, Colo.
Elliott Flying Service Davenport, Iowa
E. Farnell & Company West Palm Beach, Fla
Flightcraft Portland, Oregon
Gopher Aviation Rochester, Minn.
Gray Aircraft Service Dallas, Tex.
Hawthorne Flying Service Charleston, S. C.
Matthews Electronics San Antonio, Tex.
The Norman Larson Company Van Nuys, Cali
Ohio Aviation Vandalia, Ohio
Page Airways Rochester, N. Y.
Piedmont Aviation Winston-Salem, N. C.
Reading Aviation Service Reading, Penn.
Remmert-Werner St. Louis, Mo.
Roscoe Turner Aeronautical Indianapolis, In
San Jose Avionics San Jose, Calif.
Skymotive Chicago, Ill.
Southern Airways Company Atlanta, Ga.
Topeka Aircraft Sales Topeka, Kan.
Tulsair Distributors Tulsa, Okla.
Youngstown Airways Youngstown, Ohio

EXPORT DEALERS

Air Carrier Service Corporation Washington,
Eastern Electric & Engineering Bombay, Ind
Technical Enterprises Toronto, Canada
Transair. S. A. Colombier. Switzerland

Circle No. 24 on Reader Service Car



A CALCULATED RISK *that turned into a profitable investment is Ford D. Albritton's explanation of the purchase of the twin-engine Cessna 310. Shown with Albritton (left) is Warren C. Harmon, the engineering firm's pilot and sales engineer.*

Sales Volume *Doubled* in Ten Months

by Ford D. Albritton, Jr., president
Albritton Engineering Corporation

"What? Buy an airplane? A twin-engine airplane? An investment of $60,000 to $80,000 in any type of equipment with all the other commitments we have at this time is out of question!"

In substance this was the preliminary reaction of Albritton Engineering Corp.'s board of directors last year when I presented the idea and proposal for the purchase of a Cessna 310.

Little did the board know, nor were they able to foresee the impact that this "bombshell" carried. But let's go back a few months and review the circumstances and conditions that brought about this unusual request.

In the fall of 1949, the Venetian Window Corp., forerunner of Albritton Engineering Corp., was conceived and organized. We started doing business in a 40 foot by 40 foot building in Houston with the distribution of aluminum windows and other building specialties. As in all small businesses, the road was rocky and the pitfalls many, but the small company was able to survive and grow. From this beginning the firm became a manufacturer of prime aluminum windows.

We arrived at the crossroads in the fall of 1956 where a decision had to be made. It was necessary to decide whether we would continue as a small local manufacturer, serving a four or five state area, or grow into a major aluminum window manufacturing business.

After many hours of planning, checking, investigating, weighing and calculating all the risks involved in such a decision, we decided in the early summer of 1957 to expand our manufacturing facilities and move our entire plant and key personnel from Houston to Bryan.

The move was scheduled for October 1, 1957. Numerous liaison trips between Houston and Bryan were necessary during the 120 day period preceding the move. It was necessary to coordinate all the various departments and other problems that come up when a major move is involved. In addition to physically moving plant equipment, 22 families of key personnel had to be relocated. This was no small project in itself.

Further considerations centered in the sales department. A decision had to be reached immediately how we would expand the department in order to get distributors in 15 additional states to properly utilize the new and expanded plant facilities in Bryan and to get our sales up to a level necessary to make the move profitable.

These factors set the stage that started the company's management personnel thinking about the possible purchase of an airplane for company use. It was agreed that an airplane could be utilized to good advantage for the following reasons:

(1) The common carrier aircraft service in Bryan would cause personnel to lose at least one-half day each way on any trips beyond Dallas or Houston.
(2) A company airplane would expedite and facilitate the move of the plant from Houston.
(3) A company plane would place the firm in a position to handle promptly and effectively any service problem that arises in the field.
(4) A company plane would save the sales department months of time in getting additional representation in the territories needed.

The prime consideration was how to get the most sales and distribution in the desired territories in the least time. Employing and training salesmen consumes both time and money, but time was the big factor we were fighting.

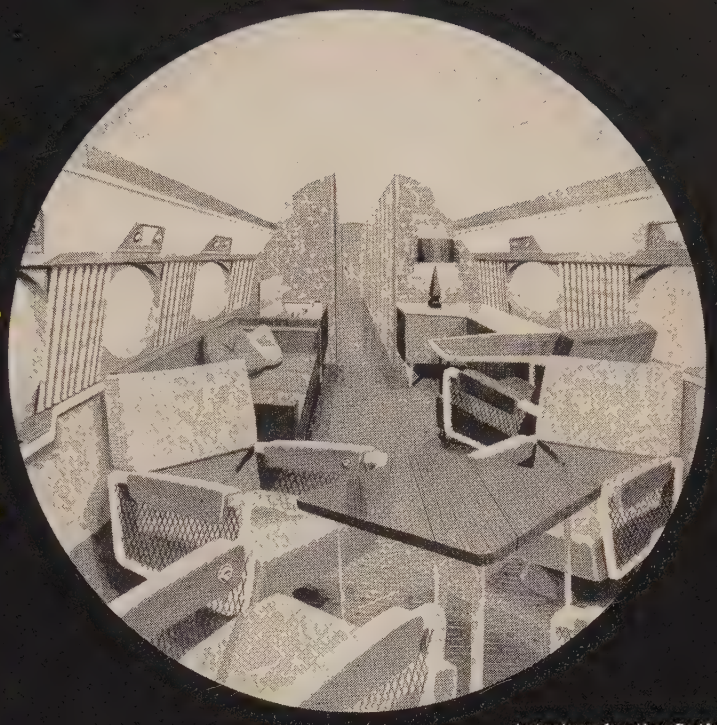
Preliminary studies indicated that a twin-engine Cessna 310 could be purchased and operated at a cost less than the cost of salaries and expenses of hiring three additional salesmen, the minimum needed to provide the necessary territory expansion. We reasoned that with a Cessna 310, our present hard hitting sales personnel could accomplish the same results at a definite savings in time and costs.

The decision of management to recommend the purchase of the airplane to our board of directors was made after careful consideration of the above factors. But why a twin-engine airplane? Why not a single-engine airplane? Again, the

(Continued on page 80)

N701G

r the leaders
industry
whom time
priceless



Interiors for the Gulfstream designed by leading stylists.

THE GRUMMAN GULFSTREAM

POWER: 2 Rolls-Royce Dart (RDa 7/2) turboprop engines, already proved by millions of hours of airline operation.

CAPACITY: Executive—10/12 passengers (comfortable 19 passenger version also available).

RANGE: 2200 miles plus a reserve of 200 miles and 45 minutes fuel.

SPEED: Cruises 350 mph at 25,000 feet (pressurized).

OPERATION: Capable of operation from runways less than 4000 feet. Cabin pressurization permits flexibility of altitudes to meet varied weather and traffic conditions.

EQUIPMENT: Provision for the most modern electronic, communications and navigation equipment. The Gulfstream is designed to be completely independent of ground handling equipment.

Companies who know the corporate airplane as a dynamic business tool have already ordered the Gulfstream. Please write Mr. Leroy Grumman, Chairman of the Board . . . or Distributors listed.

Grumman

GRUMMAN AIRCRAFT ENGINEERING CORPORATION • **Bethpage** • **Long Island** • **New York**

Atlantic Aviation Service, Inc., Wilmington, Del.
Pacific Airmotive Corp., Burbank, Cal.
Southwest Airmotive Co., Dallas, Texas
Timmins Aviation Ltd., Montreal, Canada

Flying Increases Flow of Piping Contractor's Business

When a business wants to grow, one of the prerequisites is, of course, increased sales effort. Well, the best darn salesman we have on our payroll is our Aero Commander 560-A. Let me tell you a little story.

Seven years ago when Peter Flagg took over the presidency of the C. N. Flagg and Co., Incorporated, the company was a well known and well established piping contractor operating in New England. But with youth and enthusiasm Peter was not satisfied with this and started to broaden out in scope and operation. The first step was to open up an office in Albany, New York for natural gas pipeline work. This was a long three hour drive from his home office in Connecticut, so the obvious answer was an airplane.

This was obvious for two reasons—less travel time, hence more time spent where he wanted to spend it, and second, that he was an ex Air Force jockey. The first airplane was not a very proud member of the executive fleet, it being a well used Cessna 140. The natural sequence of events followed and the 140 was changed to a 170 and that to a 182. Each one of these airplanes filled the bill for a time but with each larger and faster airplane new and broader horizons appeared, until at last with the need for instrument and night flying, he succumbed to his first twin.

This airplane was an Aero Commander 520, and believe me it was a beaut. As a matter of fact, it was serial #3. When he bought it he did so with tongue in cheek, so to speak, because of all the different stories you hear on cost factors when it comes to multi-engine airplanes.

The 520 was tremendous, however, and fulfilled the bill way beyond expectations and when it was later traded for their present airplane, I am sure a tear was shed. It was traded, however, because it lacked proper instrumentation and radio and was set up for only five seats.

The newer airplane, purchased second hand from Pete Graves at Southern Ohio Aviation in Dayton, Ohio, was quite complete, including:

Collins 17-L-3 Transmitter
Collins 51-X-1 Receiver
ARC T-21 Aux Transmitter
Collins Omni 51-R
ARC 15-E Omni
Wilcox Glide Slope
Lear ADF 14
ARC ADF 21
Lear 2 Auto Pilot with Approach Coupler and Altitude Control; B. F. Goodrich wing and empennage boots
3 light Marker.

With this type of equipment and the kind of weather one runs into in a typical New England winter, Flagg's G. I. Instrument Ticket looked a little pale, so both he and his co-pilot, John T. Walker signed up for a refresher course at Flight Safety, Inc., at LaGuardia Field in New York.

This course, according to Mr. Flagg, was one of the best investments he had ever made. Not only did they brush up on their very dusty instrument flying, but they were taught more about their own airplane than they would have learned in a lifetime of flying it themselves. They were a tough bunch of instructors at Flight Safety, and their adage, "The most important thing in an airplane is a well trained pilot," bears a hell of a lot of truth.

As an interesting sidelight, Mr. Flagg recently has been able to purchase a rather sizeable life insurance contract free of any pilot's rider by virtue of the fact that he is enrolled in Fight Safety, Inc. This saving more than paid the cost of instruction for both him and his co-pilot.

As an exponent of business flying, Peter Flagg is proud to look back on the records, wherein he can show a 700% growth in sales volume in seven years, plus a 1000% increase in net profit after taxes.

"An airplane is essential to our business, but we feel very strongly that as in anything else, if you're going to fly, do it right."

MORE "BARK" THAN "BITE"

in this front . . .

with RCA's new WEATHER RADAR in your plane!

When the weather looks like this, the old rule book says "go around." But not when you have RCA's AVQ-50 in your business or executive aircraft. Its scope will point out to you, night or day, or in IFR conditions, non-turbulent paths through or between storm areas that may save time-wasting, costly detours and give you and your traveling companions a smoother, more comfortable ride.

In addition to giving you this "look-see" into the weather as far as 80 miles ahead, the AVQ-50 provides ground-mapping information. Because of its lightness, efficiency and dependability, the AVQ-50 is being specified as standard equipment by operators of executive aircraft where weight, space and power are at a premium.

For further information address . . .

RCA

RADIO CORPORATION of AMERICA

CUSTOM AVIATION EQUIPMENT

11819 W. OLYMPIC BLVD., LOS ANGELES, CAL.

Investment Man Pilots Own Course

"You can bring together widely separated parties in a pending transaction and they'll accomplish more in a few minutes together than if they thumbed through papers all day long in offices a thousand miles apart!"

With these words, Edde K. Hays, general partner in the Chicago investment firm of Dean Witter & Co., explains why since 1950 he has used an airplane increasingly in his work. Today he estimates he logs around 500 hours a year, possibly close to a record for personal business flying, of which over 80% is accountable to his work.

Mr. Hays learned to fly in 1949 and has progressed through several singles and an Apache. He now flies a Twin Bonanza equipped with dual Omni, 36-channel Lear transceiver, 12-channel ARC, an LF and marker receiver.

Flying alone on most of his flying, Mr. Hays limits his instrument flying to IFR departure necessity only.

In the field of investment underwriting, he finds it necessary to call on many utility companies located in smaller towns which have limited, if any, airline service and flights generally range from 150 to 300 miles. Mr. Hays feels that any other means of travel would seriously curtail the territory he covers now by personal business flying. Basing the aircraft at Meigs Field, the lakefront executive base, customary traffic jam delays both enroute to, from and in the operation of the busy airline terminals of Chicago have been eliminated. Both plane and flying have proved to be assets.

SPECIALIZED HANDS
keep your plane flying better

ASSOCIATED specializes in custom radio-radar installations
Electronics with your needs in mind

we invite
your inquiries -
for quotations
call or write

ASSOCIATED
RADIO CO.
CUSTOM
LOVE FIELD
DESIGN
DALLAS
FLeetwood 7-2891
3508 Love Field Dr.

CAA
repair stations
3664
radio 1, 2 and LR

Circle No. 25 on Reader Service Card

FAMOUS FAMILY DOES IT AGAIN

Four "Big Brothers" Point the Way!

VOUGHT, TEMCO, CONVAIR, BELL MERIT SALUTE

Aviation in the Dallas-Ft. Worth area is a family affair, led by four famous Big Brothers whose presence and devotion immeasurably strengthen all of us here in a great industrial complex engaged in the myriad tasks of defense.

It is typical that these Big Brothers of ours never are Too Big nor Too Busy to link hands with industry-kinsmen in worthy local, state, and national affairs.

Such was the case in September when Dallas-Ft. Worth hosted a memorable national convention of the Air Force Association.

For AFA, Southwest Airmotive (overhauler of jet engines for the military) worked in harness again as a relatively small but fiercely proud member of this distinguished Texas-American family circle.

So we join pretty Suzanne Adams in saluting this Big Four:

Chance Vought Aircraft, Inc., whose record-breaking Navy Crusader jet fighter she holds in her hand, and whose supersonic Regulus II sub-based guided missile is seen on bottom step;

Convair, developer of the USAF's mighty Mach 2 B-58 bomber;

Temco Aircraft Corp., with its Navy TT-1 primary jet trainer and the XKDT rocket-propelled, high-speed target drone, and

Bell Helicopter Corp., producer of helicopters for industry, the Navy and now, under USAF-administration, a turbine-powered helicopter for the Army.

Thanks, Big Brothers — well done, indeed!

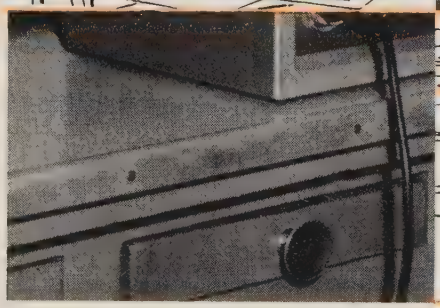
Southwest Airmotive Co.

LOVE FIELD, DALLAS
DISTRIBUTION DIVISIONS: KANSAS CITY • DENVER

Circle No. 26 on Reader Service Card

NEW SPECIAL SERVICE FOR PILOTS MEET "MISS SPARTAN"

Waiting to hear you on Unicom is Miss Spartan . . . ready to confirm or obtain choice motel or hotel reservations . . . immediately available for dictation — she'll have your correspondence ready for your signature whenever you say . . . she'll arrange for transportation wherever you want to go . . . and she has all the information on places to go and things to do in Tulsa while your aircraft is in for complete one-stop service. For any information or assistance at Spartan Aviation Service Division, write Miss Spartan ahead of arrival date; call her on Unicom, 123.0, before landing; or check with her immediately afterward. It's a pleasure to serve you at Spartan!



For service beyond price, schedule your aircraft for complete one-stop service at Spartan in Tulsa. The high standards set by Spartan's skilled specialists have meant greater safety, better performance and lower operating costs for thousands of aircraft owners and pilots. Quality gets first consideration at Spartan — and Spartan prices are right for quality work.

Serving business aviation since 1928, Spartan service includes overhaul, remodeling, modification, repair and testing — backed up by excellent shop facilities and quality workmanship.

Call, write or wire Spartan today!

SPARTAN AIRCRAFT COMPANY

AVIATION SERVICE DIVISION / MUNICIPAL AIRPORT / TULSA, OKLAHOMA

Circle No. 27 on Reader Service Card

by Robert K. Polson

THE RISE AND FALL OF AIRCRAFT VALUES

- *How much is an aircraft worth?*
- *Can you estimate tomorrow's worth?*
- *Aircraft depreciation curves in the future?*
- *What factors indicate stability in aircraft prices?*

A general knowledge of aircraft values can be useful regardless of whether you are buying or selling. . . . or making a report for the stockholders. If you want a quick answer on how much a certain model is worth *right now*, then call your local dealer or an aircraft broker. If he has a respectable trading volume, he can give you a fairly close figure. You can also consult the "Blue Book" of used aircraft prices.

If the model isn't listed, or if you want a more complete picture of what's going on, then try the "shotgun" technique. Get all the price listings you can find for that model, plot them on graph paper according to age and price, and then draw a curve through the center of the "buckshot." This is the *asking price* in today's market for an *average model* according to its age.

If you jotted down the maintenance condition and the items of equipment aboard each listed aircraft, you could get a fairly good idea of what constitutes an *average* model. You must then ask yourself, "Is this particular aircraft better or worse than the average? And by now—how many dollars?"

Some of the insurance and finance companies have done quite a bit of work on this question by means of the used-car technique of substracting so much for lack of radio and heater, and adding so much for automatic transmission. The principle is the same for aircraft . . . . you are merely working with a larger number of more-expensive items. Your problem is to determine the value of the differences between aircraft, and add or subtract the money in order to get an "average airplane."

The present value of an individual item of added-equipment is equal to . . . .

$$\text{Replacement Cost} - \left[\frac{\text{Replacement Cost}}{\text{Useful Life}} \times \text{Age of Item}\right]$$

you might call this a reasonable stab at how much the equipment is worth to someone who can use it. If you don't need or want it, then that's another story. This system will work on electronic equipment, upholstery, paint, fabric, etc.

Differences in maintenance can be estimated in the same manner, except that it is much easier to work "by the hour" rather than in years. (If the aircraft has flown 3,000 hours since the last 6,000 hour inspection, then only one-half of the "inspection money" is left.) Each aircraft has a different schedule for engine changes and inspections. These facts must be investigated before going to work.

Converted aircraft present a different problem . . . . the real difficulty lies in getting enough price listings to develop an average price. Your best bet here is to talk to someone who is familiar with prices for these aircraft. You are not completely in the dark, however, Try working backwards from the price for a new conversion . . . .subtract the depreciation of all these items from the newly-converted price. (Don't forget long-term maintenance inspections.) This answer will be too high. Then try working forwards from the price for a basic, unconverted airplane by *adding* the remaining (present) value of these items. This answer is too low . . . . but at least you will have bracketed the right answer. This is known as the "Goldilocks Method" after the noted economist U. R. Goldlilocks!) The rest is up to you.

How much will a certain model be worth tomorrow? If you are interested in "Conversions" or transport category aircraft, then you're out of luck . . . . depreciation curves cannot be drawn for these aircraft. Light twins and single-engine aircraft behave a little better. If you followed prices for a particular model, year after year from the date of original sale, the result would look something like the zigzag curve in Figure 2. This pattern is made up of short-term maintenance price-cycles which is shifted up or down depending on the amount of added-equipment. To clear the decks, the depreciation curve should be defined as the decline in value of an average-equipped model in average condition. This is the "standard" . . . . even though no such aircraft actually exists.

Long-term maintenance may be considered to be buried in the general curve. Extensive rebuilding or modification programs will of course create a large price increase. The entire cycling process of depreciation then repeats itself from this higher value. If the aircraft is not rebuilt, then the curve levels out at the residual value. Amphibious aircraft also tend to fluctuate in price according to seasons.

Following prices, year after year, can sometimes be misleading. As time goes by we would expect prices to establish a curve which slopes downward. But in cases where new aircraft prices have increased, the used model becomes slightly more attractive . . . . demand increases, and the curve tries to go in two directions at once. Inflation thus tends to lift the tail end of a price-history curve, indicating that we have very little depreciation. (One single-engine aircraft in particular is worth almost as much today as the original list price.) Such a curve would be an accurate picture of depreciation only if new prices continued to go up at the same rate as previously.

(*Continued on page* 78)

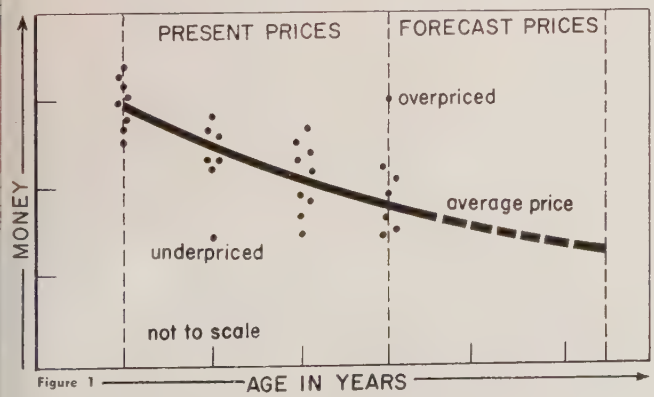


Figure 1

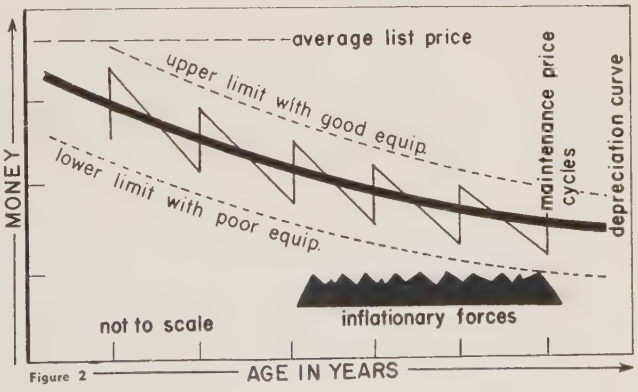


Figure 2

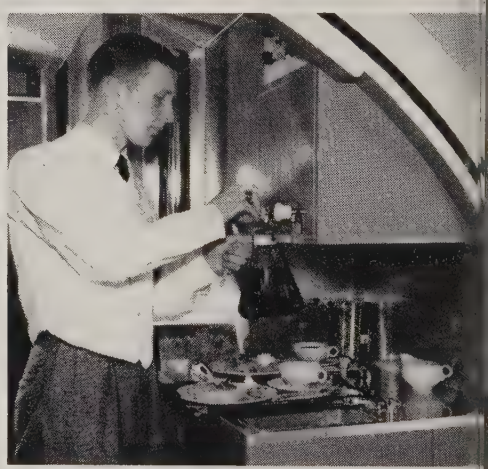
now . . . business flying

Time in transit is time on the job

Jet Age business flying is here. Fairchild, which set the pace in delivering America's first turbine powered aircraft to an airline, is now ready to deliver its executive sister ship to the first of many progressive U.S. corporations.

The executive F-27 provides corporations with the same first class luxury it brings to commercial airlines. Unmatched as a modern "flying conference room", the executive F-27 features Jet Age performance and dependability unique in its class. And it's available today!

The F-27's two Rolls-Royce Dart RDa7 propjet engines provide dependability proven in five million hours of airline and executive operation.



Ultra modern conveniences

Quiet comfort of earthbound office

enters the jet age!

The Fairchild F-27 is a triple-tested transport. Subjected to six years of intensive testing, the F-27 enters the Jet Age as the most completely tested aircraft in commercial history. Proved out in wind tunnels, torture tests and flight tests, the F-27 enters service with more hours of testing than any other new corporate airplane. From the first, F-27 executive operators will be able to call upon an established worldwide network of service facilities.

And no other executive aircraft offers this combination of comfort and performance:

- **Air conditioned on the ground as well as in flight**
- **Pressurized for high altitude flying**
- **Weather Radar for smoothest cruising**
- **Hushed engines, lowest vibration levels**
- **Cargo capacity customed to operator requirements**
- **300 mph cruising, 2250 mile range — operates from small airports closed to other aircraft of its size**

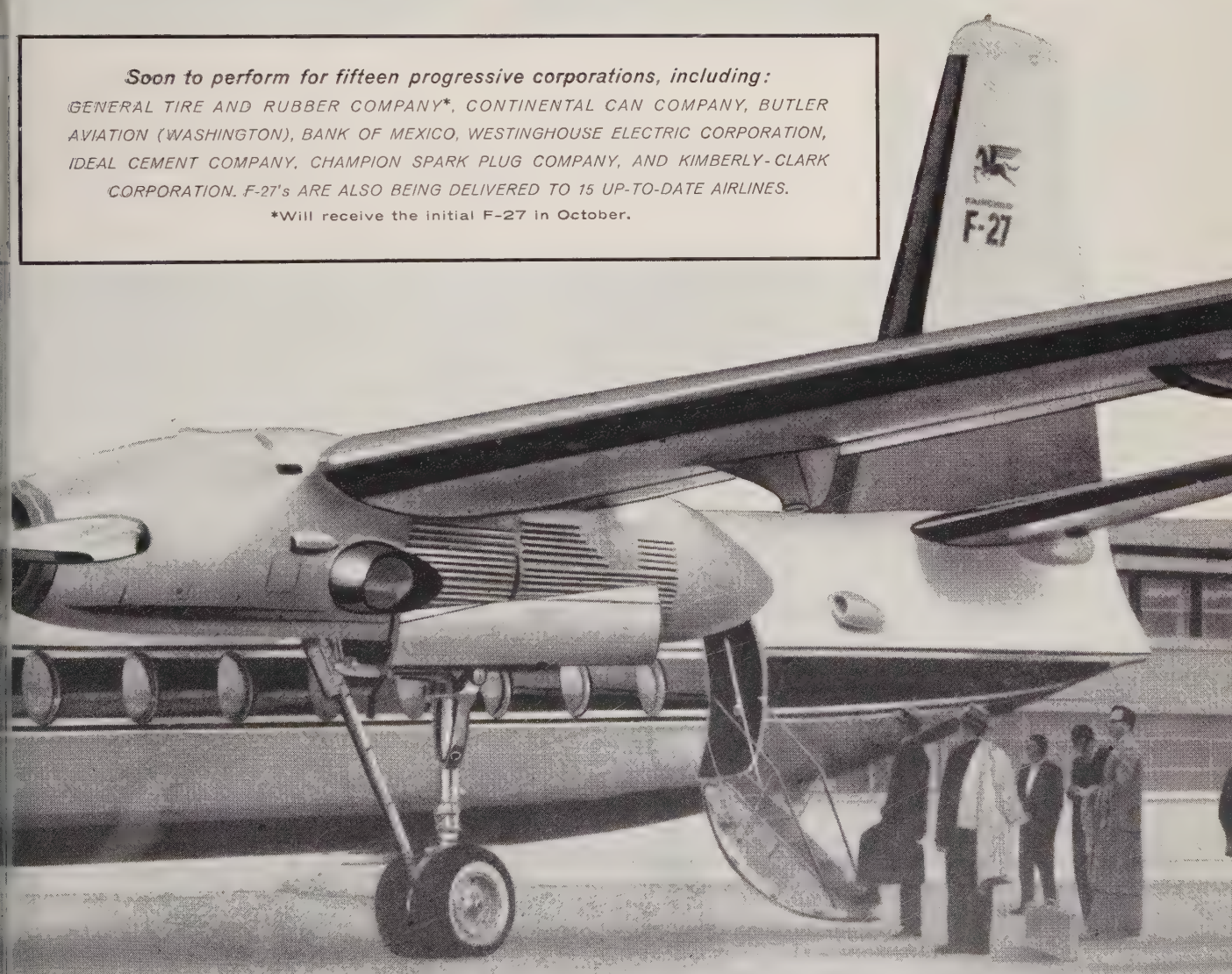
Planned from the design stage as an executive transport, the Jet Age F-27 "flying conference room" is available in a standard 16 office-passenger arrangement, or with custom interiors tailored to the needs of individual operators. The executive F-27 can accommodate up to 36 people.

The F-27 permits fullest utilization of any company's most valued asset—its executive manpower; it transforms "time in transit" into "time on the job"; and it matches the performance and luxury of first class jet express airliners.

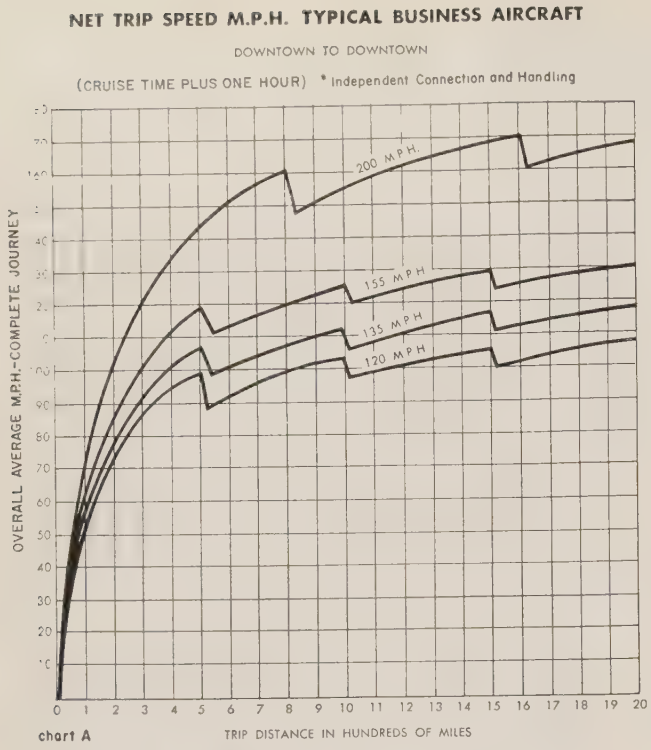
Success comes along for the ride when your executives fly

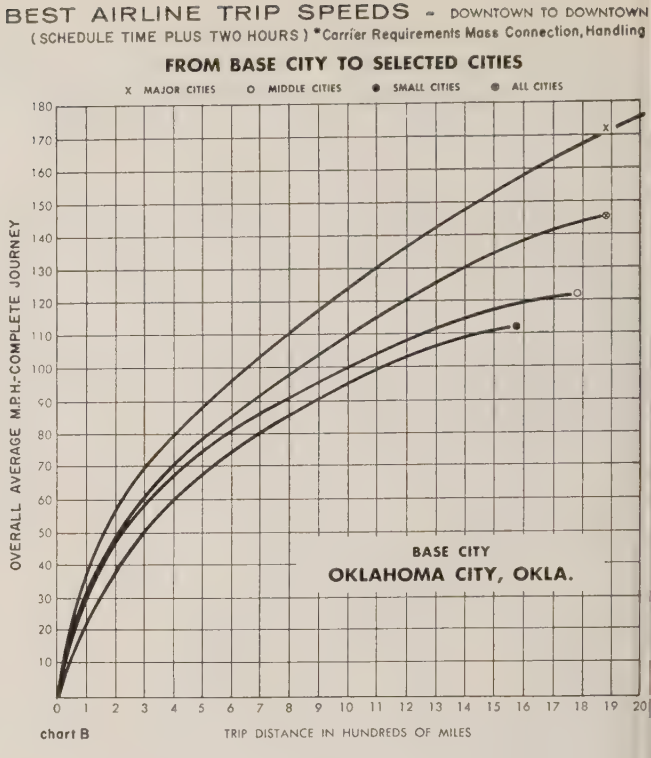
FAIRCHILD F-27

Soon to perform for fifteen progressive corporations, including:
GENERAL TIRE AND RUBBER COMPANY*, CONTINENTAL CAN COMPANY, BUTLER AVIATION (WASHINGTON), BANK OF MEXICO, WESTINGHOUSE ELECTRIC CORPORATION, IDEAL CEMENT COMPANY, CHAMPION SPARK PLUG COMPANY, AND KIMBERLY-CLARK CORPORATION. F-27's ARE ALSO BEING DELIVERED TO 15 UP-TO-DATE AIRLINES.
*Will receive the initial F-27 in October.



THE FAIRCHILD F-27: JET AGE BUSINESS MACHINE


NET TRIP SPEED M.P.H. TYPICAL BUSINESS AIRCRAFT
DOWNTOWN TO DOWNTOWN
(CRUISE TIME PLUS ONE HOUR) * Independent Connection and Handling
OVERALL AVERAGE M.P.H.-COMPLETE JOURNEY
200 M.P.H.
155 M.P.H.
135 M.P.H.
120 M.P.H.
TRIP DISTANCE IN HUNDREDS OF MILES
chart A


BEST AIRLINE TRIP SPEEDS - DOWNTOWN TO DOWNTOWN
(SCHEDULE TIME PLUS TWO HOURS) *Carrier Requirements Mass Connection, Handling
FROM BASE CITY TO SELECTED CITIES
X MAJOR CITIES O MIDDLE CITIES • SMALL CITIES ⊕ ALL CITIES
OVERALL AVERAGE M.P.H.-COMPLETE JOURNEY
BASE CITY
OKLAHOMA CITY, OKLA.
TRIP DISTANCE IN HUNDREDS OF MILES
chart B

VPM:—a new measuring stick for business aircraft

by James Herrick

The big growth of business flying has impressed even the doubters. Businessmen see their colleagues and their competitors using airplanes and they can't help but wonder if this flying business makes financial sense.

Up to now they have had to go by "feel" and most of the evidence has been so general that it hasn't had much meaning. It goes like this: "such and such a company flys—they keep on doing it—they really get around these days—they are known as hard headed about money—so it really must pay."

The next step for most businessmen is to inquire—"how much does a plane cost?"

At this stage, most people are really shocked to find that a good deal of money is often involved. And if the inquirer has his eye set on a multi-engine plane, the bill may be very big indeed.

The interesting and somewhat distressing fact is that all of this is concerned with "cost." Not much of it ever attempts to accurately measure "value."

Actually, all of this goes back many years ago when there was another revolution in transportation, and this same "problem" was apparent.

The automobile replaced the horse, but not because the auto was "cheaper." In fact, both in original cost and total cost per mile, the automobile was something like three times more costly than the horse. Then as now, businessmen wondered "will this new gadget pay its way."

For the most part, they never really figured it out. They took it on faith and the example of others who used it and seemed to prosper. They somehow realized that even though it cost more—it had a higher value and was worth the extra cost.

Cessna Aircraft Company, because of its great stake in the business airplane market, has completed a substantial and interesting study which now makes it possible to know, with great precision, the relative values of any two means of transportation. This study determines *in advance* the relative "value per mile" of each. The result shows why the automobile (at three times the cost) replaced the horse.

It is also possible to measure just how much "value per mile" a business airplane has for a particular set of circumstances.

We can now take a particular company and by knowing a few basic facts about their operation—determine just how much money they can spend or justify spending for an airplane of a particular speed.

What basic facts are needed?

All transportation eventually gets you there—the basic question is "how fast?" To measure how fast, it makes sense to think in terms of "downtown to downtown" speeds because this is what really counts.

In determining the speed of a business airplane, the VPM study assumes the cruising speed of the airplane, but with a one hour factor added to the cruising time to allow for the extra travel involved on a "downtown to downtown" independent handling and travel basis.

Automobiles, by their very nature, deliver "downtown to downtown" service and whatever speed is obtained, on the average, is already on this basis.

Airline flight speeds are quite high, but the actual speed for the airline traveler on a "downtown to downtown" basis is much slower. He must allow time for travel (often a scheduled limousine) from downtown to the airport, for ticket purchase, mass checking in, baggage handling, waiting for actual departure, etc., and again he encounters similar delays at the end of the flight.

But this is not all, the actual speed of airline travel is also affected by the type of service available in the city where the flight begins and it is vastly affected by the destination. Flights from major hub centers like Chicago, with the best airline service non-stop to a major city as a destination, are much faster than flights from more remote places where connections are not as good, but are still below 200 mph downtown-to-downtown. Most dramatic of all is trying to get from one remote location to another, *especially* where the two cities are not served by a single airline. In such cases connections add tremendously to the problem. Using Rockford, Ill., an important industrial city without trunk airline service as a base, the VPM study gives an average as low as 151 mph downtown-to-downtown to a comparable city despite airline equipment speeds of more than 240 mph.

Our VPM is based on an elaborate study of actual facts of scheduled airline travel. It is now possible to determine, with excellent accuracy, the actual average speed from any class of departure point to any class of destination.

Thus, it is possible, with the information contained in this VPM study, to determine the actual performance of airline travel for a given company's situation, provided only that the departure city is known and the class of destination (big city, middle city, small city) is known.

Knowing both the speed of airline travel, (on a downtown to downtown basis) and the speed of a given business airplane (on a downtown to downtown basis), it is then possible to determine the time saving, if any, for the business airplane. The same thing is true in comparing a business airplane with average automobile speeds.

With these relative speeds established, it is then possible to calculate or determine the actual time saved in a given set of circumstances. This "time saved" will vary in value, depending upon how many people are involved and will also change in money value, varying with the value of the travelers' time.

There is another important factor—the head start factor—the advantage of not being tied to a schedule, but being able to "go when you please." For many businessmen, this is probably the most important reason of all for the use of a business aircraft. This, too, can be measured. If the value of the traveler's time is known, it is possible to determine for any given head start time saving, how much money is involved.

All of these savings can be measured in dollars and if, after the dollar saving in a particular case is determined, the amount of money involved is divided by the miles traveled on the particular trip, you then know how much this saving amounts to "per mile."

This is the basis of the VPM study and it is a major new contribution to a better understanding of the real values of business airplanes.

Our definition of VPM is made up of two figures:

1. The amount the company is presently spending for travel

—plus—

2. The value per mile of the time saved by the business airplane.

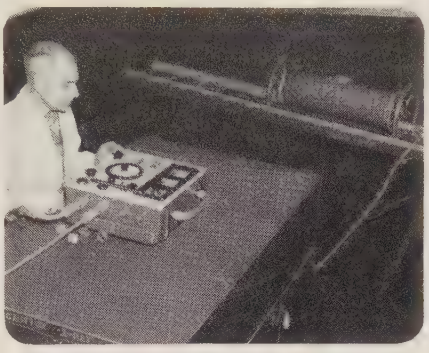
Adding these two figures together, gives the total amount of money that can be justifiably spent for a business airplane.

It is interesting that the VPM study does not always indicate that a business airplane pays its way. It is an honest formula which will turn up either positive or negative answers, depending up the circumstances.

If a company has a situation in which it is possible to justify an airplane, then the VPM formula will so indicate. If on the other hand, the type of travel, the distances, the number of people, and their time value is such that an airplane can't pay its way, VPM will say so.

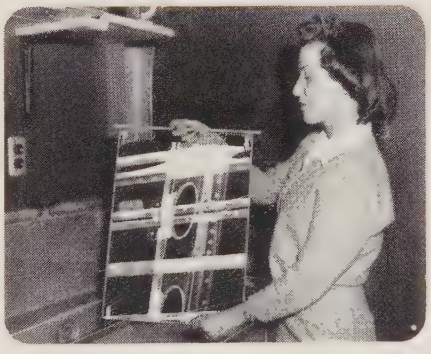
The VPM study is a sizeable one and needs many pages to tell the whole story. A good idea of what is involved can be shown in the accompanying graphs.

Graph A shows the actual obtained speeds (*Continued on page 78*)



#1 Exposure

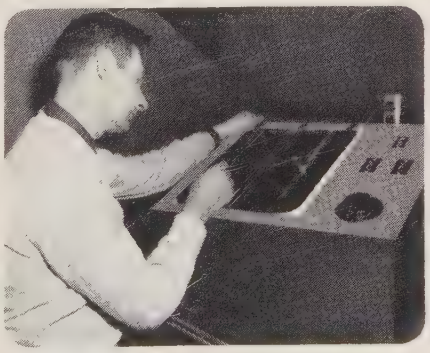
supplement your annual inspection with a complete x-ray diagnosis by Aero



At annual inspection time, go all the way. Insist on a complete X-ray diagnosis to reveal hidden defects.

At Aero, technicians take the X-rays, develop them, carefully study each section — then relay the information to skilled mechanics. A thorough job is done in one operation with complete shop facilities at Aero Corporation.

#2 Processing



SPECIALIZED SERVICES

Engineering	Maintenance
X-Ray	Interiors
Modification	Line Service
Electronics	Painting
Overhaul	Helicopter
Hydraulics	Engine Overhaul

#3 Inspection

AERO CORPORATION

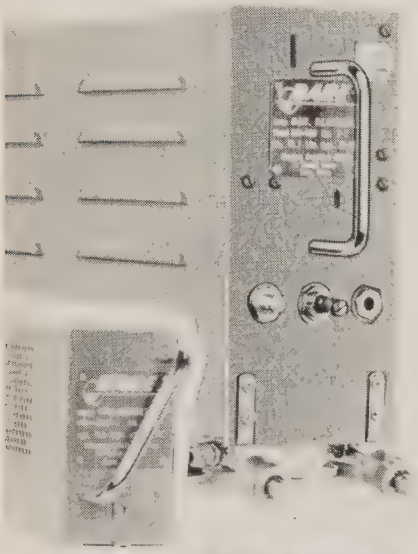
ATLANTA AIRPORT • POplar 1-7721 • ATLANTA, GEORGIA

Circle No. 28 on Reader Service Card

NAVICOM

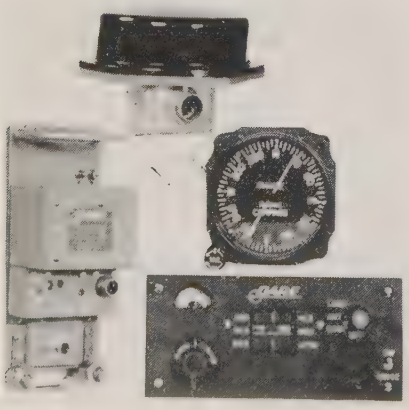
Dare, Inc.

The latest information on this line was received here too late for inclusion in the September Suppliers issue. The equipment ranges from the new Dare 90C VHF Transceiver with aural marker beacon, plastic edge lighted that fits into a standard glove compartment, weighs only 7.2 lbs, to the familiar and well-regarded DTR 360A Transceiver and the DN-560 VHF NAV system weighing 23.5 lbs and 18.0 lbs respectively.



The former comes in both panel mounted and remote rack mounted versions, with modular construction and offers 90 channel crystal transmission with tone-tuning reception over the full 108.—128. mc band. With VOR/ILS capability included, it adds up to 13.3 lbs on up plus the DNI-2 Nav Indicator at 3.4 lbs.

Dare also offers the DM-3 Marker receiver with 3-light and aural, the DGS-20 Glide Slope receiver and the lightweight DADF-1, all equipment operating on either 14 vdc or 28 vdc.



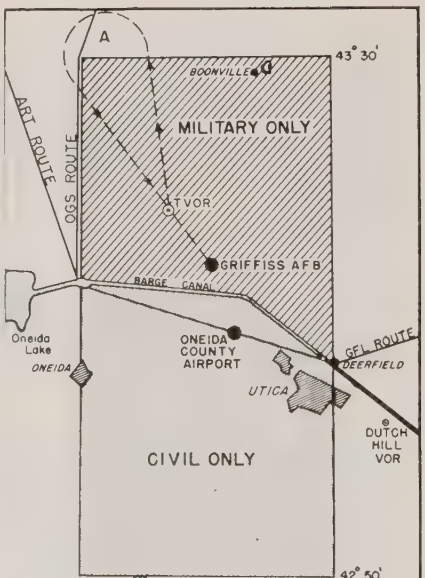
Whether planned as original or replacement equipment, the very low current drain starting at 2.2 amp/28 vdc and 4.4 amp/14 vdc for the lightest weight 90C Transceiver will attract owners of all sizes of aircraft facing the common problem of electrical overload.

A "better mousetrap" is one that you can bait and then extract the victim later without losing a finger. Then, according to the story, people will start beating down your door to buy same. Dare's engineering laboratory may well be applying this principle when they produce an item like the DAS-1 transistorized amplifying speaker. Easily replacing both 5" and 6" ordinary speakers, it provides as much as 10-watts power from 16-mw input. From one operational standpoint in the cockpit, it means minimum distortion at moderate power outputs to enable easy clear communications in high noise backgrounds. This should explain Republic's choice of the Dare equipment for their Alouette turbine-powered helicopter.

The light (22 oz) amplified speaker requires no shock-mount and is only 2¾" deep overall. Dare also makes a diversified line of airborne communications radio.

Circle No. 29 on Reader Service Card

Utica, N.Y., Area Airspace Apportioned by Military and Airline



In a voluntary action by the Air Force and Mohawk Airlines, commendable in its conception and intent, an 800 square mile airspace has been apportioned both area and altitude-wise to prevent a repetition of the Las Vegas UAL-Air Force jet collision.

In the accompanying chart, note that the airspace north of the N. Y. State Barge Canal below 5,000 ft is reserved for "military only" and south of the canal below 5,000 ft for "civil only." There is no restriction to either class traffic above 5,000 ft. Several "rules" have been agreed upon:

1) Civil traffic will not enter the military (or north) block.

2) Military traffic will not enter the civil (or south) block under 5,000 ft.

3) Civil aircraft should remain *below* 5,000 ft while *in the south block*, and crossing the canal at either the east or west boundaries, *not above* 2,500 ft.

4) Military aircraft should cross the canal at or above 5,000 ft. (Note: The Air Force TVOR approach calls for 6,000 ft on procedure turn, 3,000 ft over the TVOR on final. As *VFR practice approaches* may be in progress, VFR civil flights between Utica and Watertown or Ogdensburg are advised to remain well below 6,000 ft until clear of the pattern.

The military cross Dutch Hill VOR at 6,000 ft inbound on transition, and may occasionally use the Utica Airport ILS *for practice* when on Utica Tower frequency.

In GO AHEAD NEW YORK, official paper of the N. Y. State Aviation Bureau, the comment is made that "Although *efforts will be made* to acquaint itinerant pilots with these rules, some *'out of bounds'* traffic can be expected (italics ours). There is still no substitute for vigilance."

We would like to go further and point out to our readers that commendable as the intent of the AF-Mohawk agreement is, it has no legal or binding basis and is solely an agreement between them and a definite hazard exists in the mental complacency and false security afforded young AF jet pilots. And obviously, many "itinerant" pilots will not get the word and, although in no sense "out of bounds" under Civil Air Regulations, may become sitting ducks for another Nellis AFB tragedy.

CAA Pilot Jobs Open

The CAA plans to make numerous appointments in the near future for Flight Operations and Airworthiness Inspectors, and Airways Flight Inspection. The positions are to be located throughout the United States, the territories and possessions, and in some foreign countries. Salaries range from $5,985 to $8,330 a year.

Applicants must have had responsible experience in aviation activities (pertinent to the option for which they apply,) A specified number of flying hours are also required for some of the positions. Appropriate education may be substituted for part of the required experience.

Full information may be obtained at many post offices, or from the Civil Service Commission in Washington D.C. Applications should be filed with the Board of U. S. Civil Service Examiners, CAA, Washington 25, D.C. and postmarked not later than November 20, 1958.

How to do 6 days work in a 5-day week

Top decision-makers in the U.S. Armed Forces and their civilian counterparts have a common complaint: there aren't enough hours in any day to accomplish all the things they'd like to do; nor enough days in any week to go all the places they should go.

That's why Lockheed built the JETSTAR—a 10-passenger "economy size" jet transport that can match the performance of the big jets at only a fraction of their costs.

In the JETSTAR you can go any place in the world in the shortest possible time, in fully pressurized and air-conditioned comfort. The JETSTAR cruises at 500 knots, above the weather at altitudes up to 45,000 feet. What's more, it's so amazingly quiet (due to aft fuselage mounting of engine jet pods) that in-flight group discussions can be held in normal conversational tones. There are facilities for desk work and dictation, sleeping accommodations for overnight flights, toilet and galley. Even after transcontinental non-stop flights, the JETSTAR delivers its passengers to their destination feeling fit and ready for work.

By taking you *where* you want to go, *when* you want to go, at jet speeds —and enabling you to work enroute— the JETSTAR can literally help you do 6 days work in a 5-day week.

The only aircraft of its kind flying today, the JETSTAR has built-in stamina that assures optimum utilization at the lowest dollar cost—a distinguishing characteristic of Lockheed military as well as civilian planes for a quarter century.

Lockheed Aircraft Corporation, GEORGIA DIVISION, *Marietta, Georgia*

LOCKHEED *means leadership*

Circle No. 30 on Reader Service Card

GUARD AGAINST THE DANGER OF MID-AIR COLLISION!

It is a fair estimate that there are between 10 and 15 "near misses" everyday over the continental U.S. —*Mid-air Collision Symposium*

BOLD® "Safety-Sight" Fluorescent Colors protect you against the two main causes of mid-air collision and "near-misses"!

1. LACK OF COLOR CONTRAST IN REGULAR PAINT

BOLD® "Safety-Sight" colors are extremely *high contrast* colors. On cloudy days, at dawn, at dusk, these amazingly brilliant colors make your plane stand out sharply, even at distances of over 10 miles for smaller aircraft.

2. HIGH ALTITUDE MYOPIA

BOLD® "Safety-Sight" Fluorescent Colors can actually be "sensed" before they are seen, especially at higher altitudes when pilot vision is subject to nearsightedness. **BOLD®** "Safety-Sight" Fluorescent Colors are easy to see even with peripheral vision!

BOLD® "Safety-Sight" Fluorescent Colors have been tested by the USAF and are used at numerous bases both for aircraft markings (especially on training planes) and to outline warm-up, runway, and test areas on the field.

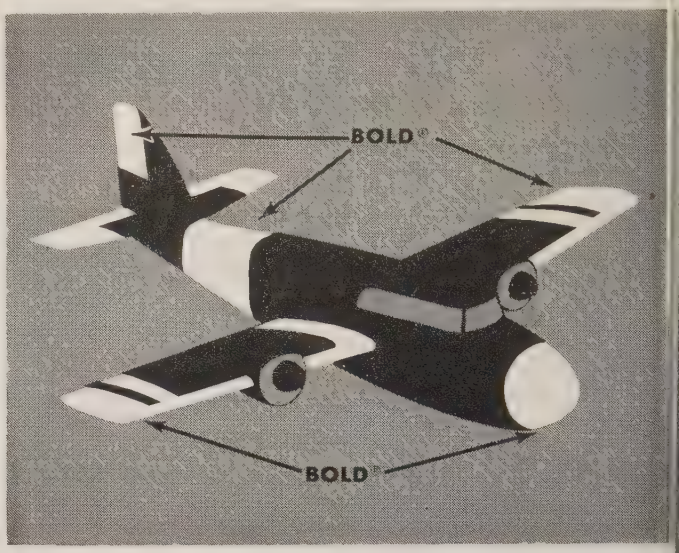
BOLD® "Safety-Sight" Fluorescent Colors are inexpensive to apply and maintain . . . last for months!

Use **BOLD®** "Safety-Sight" Colors to make runway cones, field boundary markers, and tower and hangar installations "pop-out" from surrounding terrain.

Lawter Chemicals, Inc., has pioneered in the formulation of quality fluorescent pigments since the early 1940's and offers immediate coast-to-coast delivery from four conveniently located plants.

These quality formulated fluorescent colors cost only pennies to apply over a white undercoat, the recommended method of securing highest possible fluorescent brilliance. They go on quickly, easily with brush, roller or spray can and perform best when used on wing tips, fuselage stripings and tail assembly stripings.

These colors, when applied as directed, will afford high-contrast safety protection against mid-air collisions for periods up to 15 months.



ASK YOUR MECHANIC OR BASE MAINTENANCE MAN TODAY FOR **BOLD®** *"SAFETY-SIGHT" FLUORESCENT COLORS, OR WRITE:*

LAWTER CHEMICALS, INC.
3550 Touhy Avenue • Chicago 45, Illinois • AMbassador 2-8400
Newark, N. J. and South Kearny, N.J., MArket 3-1405
San Leandro, Calif., LOckhaven 9-3694
Be sure to see us when you're in Philadelphia for the Convention . . . we'll be at the Bellevue-Stratford.

Circle No. 31 on Reader Service Card

Miss Business Aviation of 1975?

It's a pretty sneaky trick when a prominent manufacturer of aviation electronic equipment hides his message behind the universal lure of a pretty face or figure. As Southwest Airmotive proved with it's SAC girls, cheesecake does sell. And we think that cute, little 3-year-old Tina Lear gets the message across about Lear's equally miniature-scale, lightweight NAV-COM package very well.

If you can take your eyes off Tina, you will note that she is demonstrating better than a thousand words, that the new LNC-100 crystal-controlled 90/190 channel transmitting, receiving and navigation equipment will not only fit compactly in any-size aircraft panel but will impose the least possible weight penalties (including the power supply and VOR/ILS converter—13.6 lbs) as original or dualization equipment. The communications package without nav weighs in at about 8 lbs!

The "Nine-In-One" indicator merits special mention. At fraction of the cost of equivalent equipment, it displays course selection, reciprocal heading, "To-From", lateral course deviation, glide slope, localizer and both flag alarms and heading changes.

The fact that modular construction is used throughout to facilitate maintenance and enable easy expansion of the basic package to meet future requirements is noteworthy. Also, we can't help but be impressed by the fact that Lear is a good example of the trend in aviation radio manufacturing to provide the flying public with equipment at remarkably low cost that meets and exceeds TSO specs.

We had the pleasure of test flying one of the first LNC-100 combinations and exposed it to as rigorous a test as we could conceive. With all available current drain that we could pull, the 4-watt transmitter got "5 by 5" reports from ARTC peripheral stations at altitudes consistently below MRA's (Minimum Reception Altitude) at distances up to and excess of 50 miles, while the VOR signals were well within required deviation limits. Simultaneously, the ADF-12E was quick and positive on an LOM 28 miles distant and we fish-tailed with the Arcon single-axis autopilot to try and break down some part of the system with low voltage. Even crediting a good, sturdy electrical system to the weary, 6-year old single engine airplane we were maltreating, it was a convincing demonstration that the LNC-100 will be in the front ranks of the radio industry's answer to the CAB's 58-5 proposal.

Circle No. 32 on Reader Service Card

Army Picks AVQ-50 For First Twin-Bonanza Radar Installation

The U. S. Army has started its installation of radar for heavy weather flying and terrain mapping with an RCA AVQ-50 in the nose cone of an L-23D Twin Bonanza.

TAKE OFF
Power Loss
Wind Shift

EN ROUTE
Downdrafts
Obstacles

LANDINGS
Aborted Landings
Undershooting

Takeoff to Touchdown ...Power on Demand

AERO CORPORATION
ATLANTA AIRPORT
ATLANTA, GA.

AIRESEARCH AVIATION SERVICE CO.
LOS ANGELES INTERNATIONAL AIRPORT
LOS ANGELES, CALIF.

DALLAS AERO SERVICE
LOVE FIELD
DALLAS, TEX.

DALLAS AIRMOTIVE, INC.
OLD TERMINAL BLDG.—
INTERNATIONAL AIRPORT
HOUSTON, TEX.

GENERAL AIRCRAFT SUPPLY CORP.
DETROIT CITY AIRPORT
DETROIT, MICH.

HOWARD AERO, INC.
INTERNATIONAL AIRPORT
SAN ANTONIO, TEX.

LUND AVIATION, INC.
230 PARK AVENUE
NEW YORK, N.Y.

LUND AVIATION (CANADA), LTD.
MONTREAL AIRPORT
DORVAL, QUEBEC, CANADA

NORTHWESTERN AERONAUTICAL CO.
WOLD-CHAMBERLAIN FIELD
MINNEAPOLIS, MINN.

OAKLAND AIRMOTIVE COMPANY
HANGAR NO. 2, OAKLAND AIRPORT
OAKLAND, CALIF.

PIEDMONT AVIATION, INC.
SMITH REYNOLDS AIRPORT
WINSTON-SALEM, N.C.

REMMERT-WERNER, INC.
LAMBERT FIELD
ST. LOUIS, MO.

SKYMOTIVE, INC.
O'HARE FIELD
PARK RIDGE, ILL.

L. B. SMITH AIRCRAFT CORPORATION
INTERNATIONAL AIRPORT
MIAMI, FLA.

SPARTAN AIRCRAFT COMPANY
MUNICIPAL AIRPORT
TULSA, OKLA.

WASHINGTON AIRCRAFT
& TRANSPORT CORP.
BOEING FIELD
SEATTLE 8, WASH.

A NEW STANDBY ROCKET ENGINE FOR AIRCRAFT UP TO 10,000 POUNDS GROSS WEIGHT

The Aerojet 15NS-250 aircraft rocket engine delivers instantaneous thrust in any flight situation. The 15NS-250 "Junior JATO" is the only CAA-certificated rocket engine for light twin and single-engine aircraft, and new CAA policies permit weight increases equivalent to the installed rocket engine weight. Custom installations can be made on any airplane.

For information on the Aerojet 15NS-250 "Junior JATO" and its counterpart for larger airplanes, the Aerojet 15KS-1000-A1 engine, consult any of our outstanding distributors.

AEROJET-GENERAL CORPORATION DISTRIBUTORS

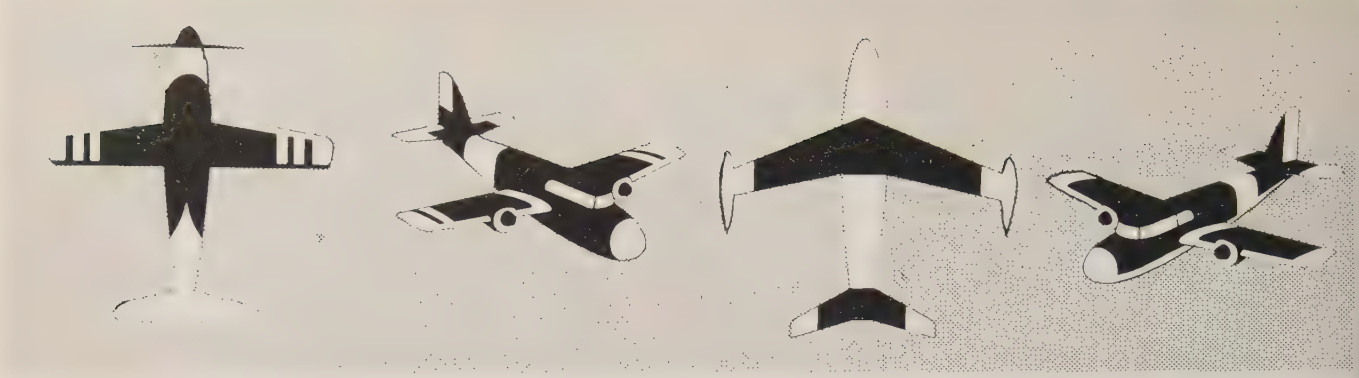
MEMBER NATIONAL BUSINESS AIRCRAFT ASSOCIATION

AEROJET-GENERAL CORP®

THE GENERAL TIRE

A SUBSIDIARY OF THE GENERAL TIRE & RUBBER COMPANY

Circle No. 33 on Reader Service Card



FLUORESCENT COLOR PATTERNS *vary from a semi-spear on fuselage and striping on wing tips and leading edges, to longitudinal fuselage stripes plus nose and engine cowl coverage. The entire nose coverage is not recommended for radar-nose equipped aircraft.*

Fluorescent Color Layouts

...How And Why They Work For Safety

The recent rejection by the Civil Aeronautics Board of increased visibility minimums for Visual Flight Rules (which would extend the area of "positive control") was based on the simple truth that 90% of all mid-air collisions and "near-misses" occurred in conditions of good visibility. The CAB further pointed out the very real need for continued research and development of other anti-collision techniques.

Following the latest dramatic mid-air collisions, public attention was focused on the wide-spread anti-collision research that has been going on for years. Private and airline-supported developments of anti-collision light systems, proximity warning systems, CAA, Air Force and private research into fluorescent paints—all indicated that the latter was the most universally acceptable, practicable and available method of reducing the growing hazard in daytime, period of greatest congestion.

As with many other safety developments, business aircraft are in the forefront, with an increasing percentage of owners applying fluorescent colors to their aircraft. All Air Force trainers are to be so marked and CAA is marking *all* of their 92 aircraft. So far, only the scheduled airlines seem to be dragging their feet although it is known that many have evaluation programs in progress. Compared to the 100% control of all air traffic which would impose a greater hardship on the non-airline airspace user, the application (and maintenance) of high-conspicuity paint to large airline fleets may seem a most unattractive financial burden. Despite this drawback, it is hoped that the new ultra-high speed jet transports coming soon will be delivered so marked for safety of their passengers.

It is known that a universal problem is aesthetic design consistent with the familiar color schemes of aircarrier and other civil aircraft. Another is the public faith and acceptance of the effectiveness of the paint. To get some answers to these and other questions, we went to one of the major suppliers of fluorescent color to military and civil users, Lawter Chemicals, Inc., manufacturers of BOLD "Safety-Sight" fluorescent paint.

Although Lawter executives advise that the conspicuity patterns as used by the Air Force and CAA are the most effective, application of fluorescent colors to various areas of the aircraft which will tie in aesthetically with the regular paint schemes can be achieved. In the accompanying sketches, note the strategic areas to be treated, which when contrasted with the regular paint scheme of a particular aircraft, will suggest an effective yet pleasing pattern. In the case of new aircraft or complete re-paints, Lawter advises that airframe manufacturers as well as aviation suppliers like Air Associates will assist aircraft owners with tasteful planning of designs.

To be convinced of the effectiveness of high-conspicuity paint, one need only understand the principles behind the manufacture of a product like BOLD Safety-Sight.

Robert Voedisch, Lawter's chief research chemist, defines fluorescence as the effect when white light passes through several layers of semi-transparent fluorescent pigment, hits a white reflective undercoat and then bounces back in a highly intensified form, as it converts the shorter violet and blue wavelengths to orange, red and yellow hues. When that same white light hits non-fluorescent paint or other surfaces, only portions of the light are reflected

PURITY OF PIGMENT *necessary in fluorescent color requires elaborate quality control. View is of Lawter Chemicals, Inc. research laboratory located in Chicago, Ill. area.*

Aero Commander means business

A pilot fully appreciates the complete dependability of this high performance aircraft

Looking skyward, you easily recognize the purposeful design of an Aero Commander. But as you sit at the controls of this rugged, determined aircraft, you *really know* its character. You *feel* its high-wing stability, its instant responsiveness, and its unquestioned ability to carry you anywhere you want to go, high and fast!

Aero Commander is the all-weather, over-the-weather, business aircraft that combines supercharged performance, speed, comfort and long range with practical size and maximum short-field flexibility. And its single-engine reliability provides an important, extra measure of assurance in any situation.

Since you know your business, you know if you've flown one—for only a few minutes—that Aero Commander *means business!*

COMMANDER

AERO DESIGN & ENGINEERING CO
BETHANY, OKLAHOMA
A Subsidiary of ROCKWELL-STANDARD Corporation

LOOK TO THE LEADER IN BUSINESS AIRCRAFT

Write or wire today for illustrated brochures which describe the 500, the 560E, the 680 Super, the 680E or the magnificent Alti-Cruiser, world's first pressurized executive aircraft!

Circle No. 34 on Reader Service Card

Visit Aeroquip in Booths 22 and 23 NBAA 11th Annual Meeting and Forum September 22-26, Bellevue Stratford Hotel, Philadelphia

A DC-3 type corporate aircraft equipped with Aeroquip Hose Lines.

DC-3 Engines Get New, Lighter 'Life Lines'

New Type Aeroquip Hose Lines Save Weight, Increase Fire Resistance, Extend Service Life

Close-up of a firewall section shows 666 Hose of Teflon with fire sleeving and 601 Lightweight Engine Hose with stainless steel braid cover. Together they offer increased fire resistance and longer service life on engine lines.

Teflon is DuPont trade name for its tetrafluoroethylene resin.

Use of new type Aeroquip Hose Lines offers important safety and service advantages to all aircraft operators. On a typical overhaul job, PW-1830-94 engines on a DC-3 were completely replumbed with Aeroquip 601 Lightweight Engine Hose and 666 Hose of Teflon.

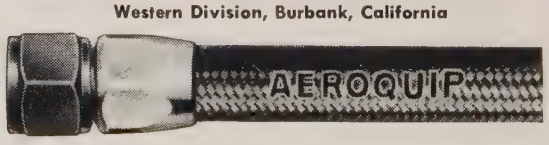
Aeroquip 601 Hose provided CAA "fire-resistant" installations on all fuel and lube oil lines from the firewall forward. Substantial weight reduction and increased flexibility were added advantages.

Aeroquip 666 Hose of Teflon, with Aeroquip 624 Fire Sleeving, gave CAA "fireproof" protection for all hydraulic, de-icer and vacuum line installations. Practically unlimited service life is anticipated.

Both hose types use Aeroquip Detachable, Reusable Hose Fittings for quick assembly with bench tools. Total weight savings on this DC-3 is 17.86 lbs.

Make sure your aircraft "life lines" have all the safety and service life that can be attained. Specify Aeroquip Hose Lines on the next overhaul. Write for Service Reports #108 and #109.

Aeroquip Corporation, Jackson, Michigan
Western Division, Burbank, California



Aeroquip
REG. TRADEMARK

DISTRIBUTED BY:

Aero Hardware & Supply Co., Miami Springs, Florida
Airwork Corporation, Atlanta, Ga.; Cleveland, Ohio
Amnor Aviation Corp., Mamaroneck, N.Y.
Faxon Engrg. Co., Inc., Hartford, Conn.
Gen'l. Aviation Supply Co., Inc., Houston, Texas; Oklahoma City, Okla.; St. Louis, Mo.
Gen'l. Aircraft Supply Corp., Detroit, Mich.
Aero-Land Supply Co., Oakland, Calif.
Nielsen Hydraulic Equipment Co., Pelham Manor, New York
Southwest Airmotive Co., Dallas, Texas; Denver, Colorado; Kansas City, Kansas
Van Dusen Aircraft Supplies, Minneapolis, Minn., Teterboro, New Jersey; Chicago, Illinois; Alexandria, Va.; Miami, Fla.
Air-Parts, Inc., Burbank, California
Aviation Service & Supply Co., Denver, Colorado
Richey Air Sales, Inc., No. Hollywood, Calif.
Sky-Store, Hawthorne, California
Spencer Aircraft Industries, Inc., Seattle, Washington
Field Aviation Co., Ltd., Oshawa, Ontario, Canada
Lund Aviation Ltd., Dorval, P.Q., Canada
Northwest Industries, Ltd., Edmonton, Alberta, Canada

Circle No. 35 on Reader Service Card

back, the rest being absorbed or dissipated as heat and other non-visible forms of energy.

To illustrate, the "light" in an overcast or hazy sky might be said to contain:

10 units of infra-red (invisible)
20 units of red
20 units of orange
20 units of yellow
20 units of green
20 units of blue
20 units of violet
10 units of ultra-violet (inv.)

Assume that you were enroute and unknown to you, two aircraft are approaching at your altitude on "a collision course." Only one has been painted with medium orange Safety-Sight fluorescent color. The other could be unpainted but to assume the best alternative condition, painted with ordinary paint in a comparable orange-red shade.

The atmospheric light falling on the latter aircraft will reflect the 20 units each of red and orange and perhaps half of the 20 units of yellow. All the rest will be absorbed and lost. The total units potentially visible to you would add up to only 50.

The same light falling on the plane with fluorescent color will reflect the same 50 units plus an additional number of orange, red and yellow units "manufactured" by the molecules of the fluorescent pigment from the green, blue, violet and ultra-violet units otherwise absorbed and lost. The total reflected light could be as much as 100% more, cutting your hazard recognition time in half, and adding this vital time to that necessary for evaluation and evasive action.

In conditions where an ordinary painted airplane would become apparent at three miles, one properly marked with Safety-Sight fluorescent color has been spotted up to eight and twelve miles distant.

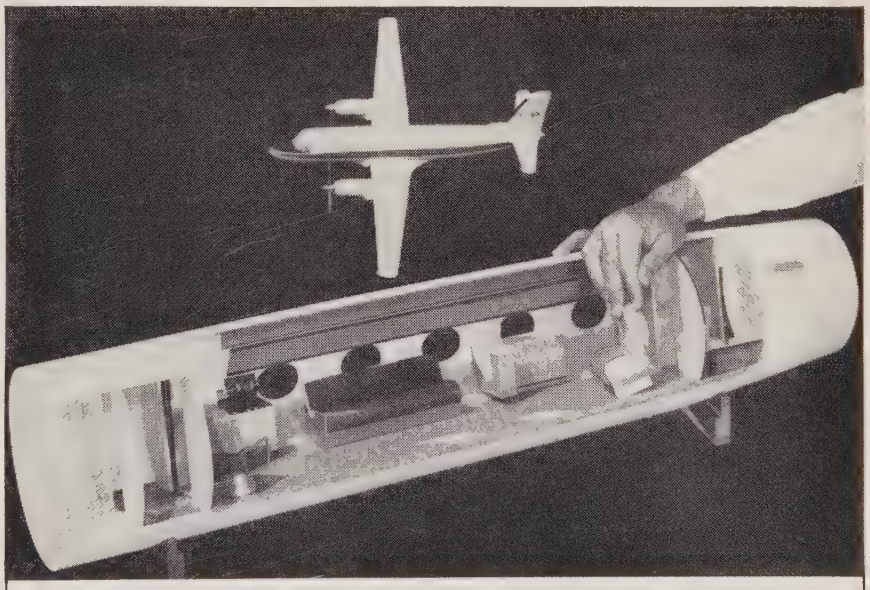
Another hazardous condition exists in unlimited visibilty at high altitudes and on top of an undercast—"high altitude myopia," a form of nearsightedness for lack of reference points to focus on.

Henry Ferguson, Vice President of Lawter, points out that wherever an aircraft marked with BOLD Safety-Sight lands, inquiries usually follow leading to additional orders. Many airports and communities are using the fluorescent paints wherever they have previously relied on the familiar but nowhere near as effective yellow or white stripes alternating with black. Also Lawter has been intensifying their efforts to persuade the major airlines to take up the practice, already so widespread on business aircraft.

Surprisingly, the smaller local service airlines seem to be enlisting in this recognized safety campaign ahead of their larger contemporaries. If the CAA and other evaluation tests underway so indicate, the CAB may very likely require a minimum of application of this paint to all civil aircraft. Given a reasonable period of compliance, the ef-

McMillan means . . .
Quality radomes
for the business fleet
BOOTH 20
NBAA SHOW
McMILLAN INDUSTRIAL CORPORATION
IPSWICH, MASSACHUSETTS

Circle No. 36 on Reader Service Card



GRUMMAN 159 GULFSTREAM *by Atlantic Aviation*
Atlantic Aviation design and installation teams are currently designing custom radio, electronics and interior installations for the Grumman 159 Gulfstream.

Atlantic Aviation CORPORATION

BOSTON	NEW YORK	PHILADELPHIA	WILMINGTON	LYNCHBURG
International Airport	Teterboro Airport, N. J.	International Airport	New Castle County Airport	Preston Glenn Airport
LOgan 7-8700	ATlas 8-1740	SAratoga 6-7500	EAst 8-6611	LYnchburg 3-3134

Circle No. 37 on Reader Service Card

fect would be not unlike that of financial responsibility laws in many states.

Timed to coincide with the contemplated speed versus-visibility regulation, the net total could be a tremendous step forward in real safety without waiting for costly, heavy "black boxes" or discriminatory "more control."

Air Defense Radar to Assume ARTC Role

Civil Aeronautics Administration and the USAF's Air Defense Command have formalized an arrangement whereby 31 of ADC's high-power, long range radar installations will go into joint use to aid CAA in air route traffic control.

Radar sites covered by the arrangement are on or near high-density airways, and CAA will use the equipment to control both military and civil aircraft movements in these areas. One of the stations, at Kansas City, has been in use by CAA in approach control for some time. This will now be extended to include long-range surveillance and air route traffic control.

Other cities with radar sites covered by the new agreement are; Denver, Boston, Pittsburgh, Seattle, Atlanta, Salt Lake City, Houston, Nashville, Great Falls, San Antonio, New York, Washington (D.C.), New Orleans, Fort Worth, Phoenix, Jacksonville, Spokane, and Memphis. In some cases more than one radar is involved, and microwave links and ATC radar displays will be installed to feed ADC radar data to the appropriate ARTC centers.

CAA will budget its own special ATC needs at the sites, and will handle maintenance. ADC will handle any security matters required, as well as its own needs as relating to defense. Both CAA and ADC will furnish personnel to staff the sites.

The two agencies cite several advantages in having a joint use arrange-

(Continued on page 84)

Suite 344

Your Board of Directors held the August Board Meeting in Phila. and as usual had a very full agenda. Started in at 6:30 p.m., quit at 11:00 p.m., 8/12; started at 8:00 a.m. quit at 4:00 p.m., 8/13. Also met with the Local Arrangements Committee.

Board Members present: Joseph B. Burns, Pres., representing The Fuller Brush Co.; Gerard J. Eger, Exec. V.P., representing International Harvester Co.; John H. Winant, Treas., representing Sprague Electric Co.; E. M. Beattie, General Electric Co.; B. J. Bergesen, The Ford Motor Co.; Walter C. Pague, ARMCO Steel Corp.; C. F. Zimmerman, Continental Oil Co.; Henry W. Boggess, Sinclair Refining Co.; Jim Ketner, Jr., Texas Eastern Transmission Corp.; also, Joe Lacey, Sinclair Refining Co.; John P. Meyers, Hubinger Co., your Exec. Dir., William K. Lawton, and Yours Truly.

Local Arrangements Committee present: Robert A. Morrison, Chairman; John H. Sellers, Co-Chairman; J. C. Davidson, Welcome and Host, all of Insurance Company of North America Companies.

Manny Davis, Entertainment, No. Phila. Airport; David Dows, Jr., Reyburn Plaza Exhibit, Airwork, Inc.; Frank Dyer, Jr., Treasurer, Phila. Nat'l. Bank.

Wm. F. Hamill, Jr., representing the City of Philadelphia; Gene Hosmer, Housing and Accommodations, Convention Bureau; Donald Redpath, Exhibits, Atlantic Aviation.

Robert B. Ward, Publicity, Atlantic Aviation; J. Story Smith, Transportation, Wings, Inc.; Gene Wyble, Solicitations, Wyble Agency.

The judges of contestants for MISS BUSINESS AVIATION, 1958, found that members of NBAA, not only have beautiful girls working in their offices, but some very great talent. Some have backgrounds with aviation, modeling, sports, writers, music, secretaries, etc. But we think you will agree with the judges that it was quite a job to pick from the finalists.

Dick Groux is quite happy with the number of NBAA members offering to serve on the CAA Air Traffic Control Advisory Subcommittees. It is pleasing to see what we have long needed, "grass roots," of local representation.

At this writing the JETSTAR is in Wash. In fact, Bill Lawton is in it. Be sure to see the JetStar, along with the Gulfstream, F-27, plus many other types of aircraft, and it is hoped that the Moraine-Saulnier will be there.

NOTICE TO NBAA REPRESENTATIVES: Please keep National Headquarters notified of any change in personnel, types of planes, new certifications, etc., at all times. If we don't have your latest records, how can we keep you posted on the many activities of NBAA.

ANOTHER business aircraft operator joins with hundreds of others in voicing the interests of all users of aircraft for business purposes, as a Regular Member. RIDGE ASSOCIATES, INC., Flint, Mich.

Ridge Associates are in the transportation business, operating a Beechcraft E18S.

NBAA Rep.: Walter F. Carey, President

Chief Pilot: Leslie W. Hunter.

Visit your National Office. You are Always Welcome.

"C. M."

Modernize your TWIN BEECH into a Super-18!

Give your ship that . . . Airline look!

Custom Manufacturers of . . .

* The Power Step
* De Luxe Card Table
* Jet Nose Cone
* Luxury Divan
* Reclining Easy Chair
* Straight Line Interior Kit
* Other Conversion Items

Send for Catalogue No. 383 on modernizing the Twin Beech.

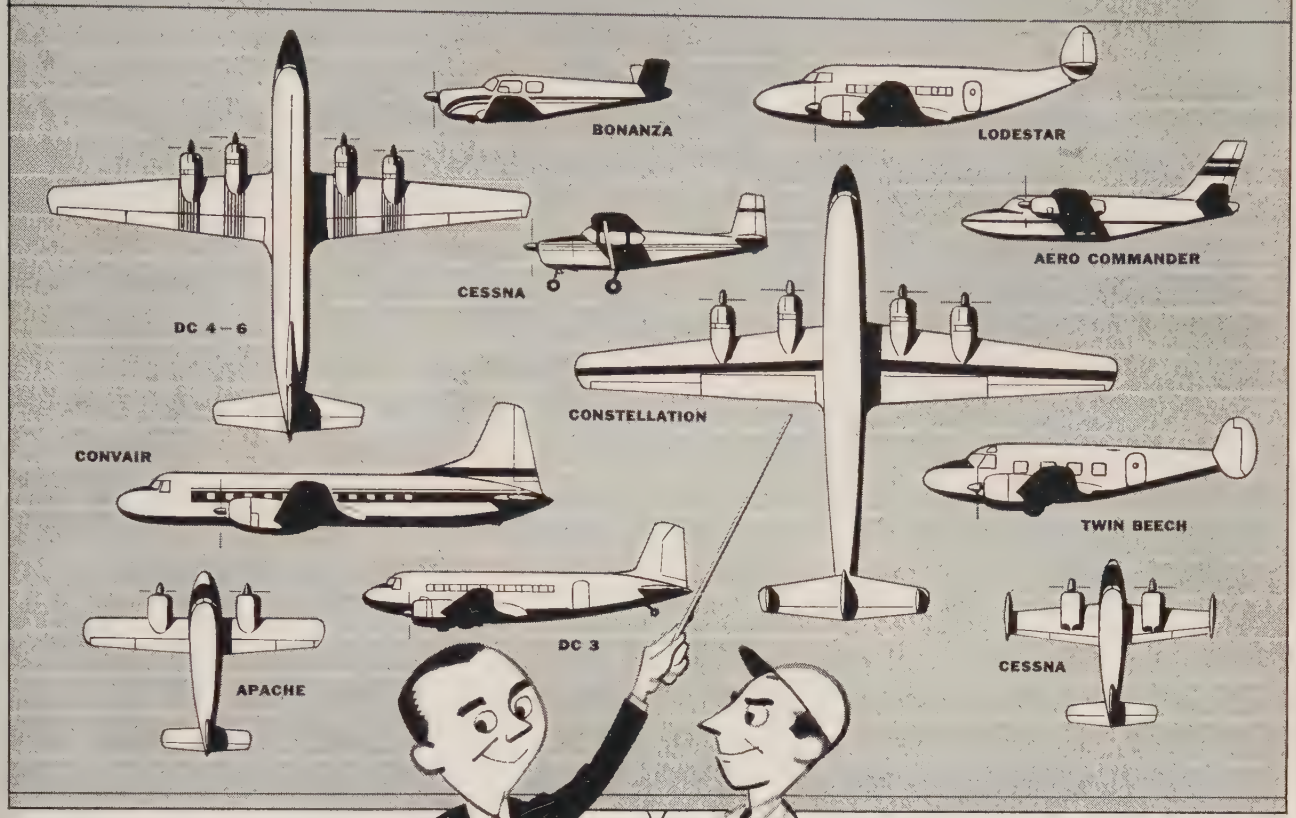
It's Safer!
Reduce fire, damage and re-covering problems by converting your control surfaces from fabric to metal.
C.A.A. - S.T.C.
Fly-in exchange also available.

Airline Products Company

5536 Satsuma Avenue, North Hollywood, Calif. Phone: POplar 1-1732 Cable: AIRLINE, NO. HOLLYWOOD

Circle No. 38 on Reader Service Card

PAC CLIENT RECOGNITION CHART



"PAC's single-stop-service is the only complete maintenance and modification available to all types of aircraft! Right?"

"RIGHT, BROTHER!

And whether it's for a single plane or a fleet, PAC's facilities include modification or repair of basic structure, electrical and hydraulic systems, engines and propellers, radio, instruments, and installation of cabin interiors"

PAC's **Right** Brothers symbolize the correct methods and procedures of aircraft service. PAC has developed, during 30 years of aircraft maintenance and repair, the **Right** way . . . the way you would want it done. From light planes to corporate and commercial fleets, handling every possible requirement you might have, PAC has become famous all over the world for fine craftsmanship. A long list of satisfied customers attests to PAC's competence. For more information, write or call:

PACIFIC AIRMOTIVE CORPORATION

2940 North Hollywood Way, Burbank, California Victoria 9-3481

Circle No. 39 on Reader Service Card

CANADIAN REPORTS

North of the Border
By R. J. Childerhose

NUCLEAR *precession magnetometer is carried by copter. Punch tape recorder and electronic instruments are set up in cabin, and sensing device trailed in "bird" (circled).*

Spartan Using New Magnetometer

The Varian nuclear precession magnetometer, an instrument used in the Vanguard satellite and Aerobee rocket programs, has been introduced into Canada by Spartan Air Services Ltd., as an airborne tool for oil and mining exploration.

The Varian unit records its results on punched tape instead of continuous strip chart. The tape is then fed into an electronic digital computer on the ground to translate the results. This system replaces the slower method of hand processing the data in the laboratory.

Spartan, the publicly owned Canadian aerial survey company, is equipping some of its helicopters and fixed wing aircraft with this new magnetometer. It will be used for work in eastern and western Canada, as well as abroad in South America and Africa.

The nuclear magnetometer is an ingeniously simple device whose "brain" or sensing element is essentially a coil of wire immersed in a bottle of water or other liquid containing hydrogen atoms. It uses the principle of nuclear induction, which means that the hydrogen atoms are made to oscillate under the influence of the earth's magnetic field. The frequency of the oscillation is proportional to the earth's magnetic field at any point. This frequency is then recorded on punch tape for convenient computer processing.

Spartan Air Services Ltd., has flown some 1.5 million line miles of aerial prospecting or geophysical surveys in North America and Asia. This was done mainly with an older type magnetometer, but also with the electromagnetometer and scintillation counter. The company operates some 50 aircraft and helicopters on geophysical surveys, photo-mapping, Shoran mapping control and radar line support.

Night Flying Regulation

The director of civil aviation in Canada has advised that the Department of Transport is proposing to amend air navigation order, series IV, paragraph No. 2 as follows:

"No holder of a private pilot license may fly by night unless:

(a) His licence has been endorsed for night flying and if passengers are carried, he shall have performed not less than five take-offs and five landings by night within the six months preceding a flight on which passengers are to be carried.

(b) If his licence is not endorsed for night flying, the flight is in an aircraft not carrying passengers and is under the supervision and direction of an instructor authorized to give night flying instruction until completion of at least two hours of dual night flying instruction and one satisfactory solo night flight."

In addition, the following experienc requirements will be laid down by th department for endorsement of nigh flying privileges in the case of bot private and commercial pilot licences:

1 Private pilot licences:—

(a) Five hours of dual instrume flying, two hours of which may b obtained on flight simulators,

(b) Ten hours of night flight which five hours may be dual fligh time including not less than te takeoffs and landings as pilot-in command.

2 Commercial pilot licences:—

(a) Ten hours of dual instrume time, five hours of which may b obtained on flight simulators,

(b) Ten hours of night flight which five hours may be dual, in cluding not less than ten takeoff and landings as pilot-in-comman

COPA Meet at Moncton

A group of approximately 25 mem bers of the Canadian Owners an Pilots Association met earlier this sum mer at Moncton, N.B. It was the fir meeting of its kind to be held at Mon ton, and was attended by pilots fro Moncton, Fredericton, Charlottetow and the North Shore. Although so 30 to 40 persons were expected, a verse weather conditions prevented number from flying in.

D. B. Saunders, director of civil a ation for the federal Department Transport, addressed the members a dinner held at McEwen's Airfie Said Mr. Saunders: "Properly orga ized, light aircraft pilots can fulfill i portant roles in civil defence as w as search and rescue operations."

A veteran of nearly 40 years in civ and military aviation, Mr. Saunder told the meeting that the DoT welcom the active interest of the COPA. H said that such an organization provid a common voice for civilian fliers bring matters to the department's a tention. The views of the COPA a sist the department in drafting regul tions aimed at keeping the air safe f all fliers.

More exercises in the future invol ing the use of light aircraft in searc and rescue missions were predicted b Gerry Christie, chief training offic for the southeastern civil defence zon of New Brunswick. Mr. Christie praise the work of civilian pilots flying lig aircraft on search and rescue duti and the more difficult role of civil d fence.

The dinner meeting was opened b Charlie McEwan, Maritime COPA d rector. Chairman was Don Simmon president of the local COPA grou After dinner, three films on flig safety, civil defence, and first aid we shown.

BENDIX RADAR SAVES WEIGHT, SPACE ON FAIRCHILD F-27

Here's important weight and space-saving news for airlines and multi-engine business aircraft owners. Now available from Bendix* . . . a new 150-mile range airborne weather radar TRANSMITTER/RECEIVER weighing only 28.7 pounds and completely housed in a 1/2-ATR package.

This new T/R unit, when used with the new Bendix 18-inch stabilized antenna, reduces the total system equipment weight to 82 pounds. (With 22- and 30-inch antennas, total system weight is approximately 91 pounds.)

Because of its lighter weight, smaller size, reduced power requirement, and increased performance, Bendix Weather Radar is recommended by FAIRCHILD for installation in the F-27.

For further information, write Bendix Radio Division, Aviation Electronic Products, Baltimore 4, Md. Export: Bendix International Div., 205 E. 42nd Street, New York 17, N. Y. Canada: Computing Devices of Canada, Ltd., Box 508, Ottawa 4, Ontario.

*TRADEMARK

Bendix Radio Division

Bendix AVIATION CORPORATION

Circle No. 40 on Reader Service Card

SAFETY DIGEST

RICHARD W. GROUX, *Assistant to Excutive Director NBAA*

Compiled and edited from leading air safety publications issued by military, naval, airline, government agencies and from private and business pilots' experiences.

Midnight Bailout

The aircraft appeared to be functioning normally with the exception of a rather reluctant cabin heater, and nearly five hours had passed before the first indications of trouble appeared. Then, without warning, the left engine cut out. The pilots immediately switched from auxiliary to main fuel tanks and prepared to feather No. 1 prop but at that instant the right engine fuel pressure dropped to 5 psi and then the power failed on that side. A moment later No. 2 started to cut in intermittently, but the aircraft was losing altitude rapidly and the pilot alerted the crew for a crash-landing.

With the landing lights on, the C-47 continued to descend until about 150 feet above the terrain. Just before a crash appeared inevitable, the left engine roared back into life and the old Gooney went staggering upward again. Climbing cautiously, the pilots switched the fuel selectors from right to left mains and then back to the auxiliaries. where they remained for the balance of the flight.

The right engine was helping a bit on the climb for altitude, it appeared to be going through a series of cycles. Fuel pressure would build up to 18 psi and then drop off rapidly to 5 psi. Immediately afterward the engine would cut out and it was necessary to retard the manifold pressure to stop it from backfiring. Then, after about five seconds the pressure would build up again and the throttle could be advanced to about 18 inches Hg.

The following comment made by the co-pilot indicates the hectic conditions under which they were operating.

"We figured the right engine was just about carrying itself. We talked about feathering the prop on this engine but there was a possibility of its coming back in and since it wasn't hindering us, we didn't. We flew for about 15 minutes and the fuel pressure would go down and back up. I counted about 35 separate surges in that time. We checked the fuel supply in the mains and they looked pretty empty. We tried feeding from left and from right auxiliaries and it didn't seem to affect the No. 2 engine at all, no matter which tank we fed from.

Finally the pilot made contact with our home base and declared an emergency. Very shortly after they had cleared us for a straight-in approach, No. 1 cut out. Fuel pressure went down and we started losing altitude again. I went back and we got set to bail out but then No. 2 came in pretty well, or seemed to from the rear, so I went forward to check it. We were still losing altitude at about 1,000 feet a minute and only up a couple thousand feet above the ground. The pilot said that if we were going to bail out it was now or never so I went aft again and the navigator kicked the door out and jumped; I followed."

A bright moon aided the pilot when he was finally forced to crash-land the C-47.

Post-crash investigation revealed that the right fuel selector valve was faulty. A poppet had stuck in the open position, and allowed air to get into the fuel lines. It is noted that the Maintenance Section of the squadron involved were apparently unaware of the inherent dangers of this condition because the right fuel selector valve was carried as a delayed discrepancy.

Immediately after this crash, a series of tests was run to determine the conditions which would cause engine failure with an internally leaking fuel selector valve. The following conditions were established prior to ground runup:

a. The right main fuel selector port was mechanically locked in the open position.

b. Fuel servicing:
   (1) Left Main—Empty
   (2) Right Main—5 gallons
   (3) Left Auxiliary—50 Gal.
   (4) Right Auxiliary—60 Gal.

From time of servicing to time of runup an estimated 10 gallons of fuel entered the right main fuel tank by gravity flow. This was apparently caused by the No. 2 engine selector being positioned on the right auxiliary tank and allowing fuel to flow from the open port into the main tank.

Both engines were started and operated on the right main tank. As this tank ran dry, the fuel pressure on the right engine dropped to zero and the engine quit. The right engine fuel selector was switched to right auxiliary and the fuel pressure returned to normal; however, although the engine picked up again, it fired only intermittently. It was impossible to obtain more than 15 inches manifold pressure apparently because of the air in the fuel system coming through the open right main port. Very shortly thereafter the right engine stopped completely, and it was impossible to restart regardless of the position of the fuel selector.

Concurrently with the above, the left engine continued to operate normally at cruise power, without fuel pressure fluctuation, with the left fuel selector on the right main tank. The left fuel selector was checked for internal leaks and found to be satisfactory. It was determined that the fuel to the left engine was coming from the right auxiliary tank through the right fuel selector, through the open right main port across to the left engine fuel selector to the engine. This was verified by changing the right engine selector from right auxiliary to right main or off position, and in both instances fuel pressure on the left engine dropped and the engine stopped operating. When the left and right engine selectors were placed on the left auxiliary tank, the left engine operated for one-and-a-half minutes, then the fuel pressure dropped and the engine ceased firing.

It is apparent that the fuel system of the C-47 can work in many and wondrous ways. We feel that a more thorough understanding of its complexities could be reached by study by pilots and maintenance personnel. The good old Gooney, like death and taxes, will probably always be with us, but new pilots and new maintenance men are always joining our ranks and sooner or later will in all probability be exposed to the C-47. We hope this article will help the newcomer and possibly some of the old timers.

In passing, here are a few reminders:

a. *When any one single poppet valve is stuck in the open position on either right or left fuel selector and the particular fuel tank goes dry, either one or both engines may fail due to air leaking from the empty tank through the faulty poppet valve into the fuel selector.*

b. *Any leak or open valve to an empty fuselage tank can cause failure of engine/s regardless of the position of the fuel selector valve.*

It is recommended that each fuel selector valve be checked during preflight by turning the valve to the OFF position while the engines are running. If engines do not quit, indications are that one or more poppet valves within the selector valve are sticking open. It is also recommended that all C-47 aircraft not be operated on any tank with less than 25 gallons of fuel.

The old C-47 is a mighty kindly airplane by anyone's standards, but pilots and maintenance personnel should have a thorough knowledge of her every system. That's just good sense.

(Aircraft Accident and Maintenance USAF Review)

(Continued on page 84)

American Airmotive
CORPORATION

THE HANGAR IS 160′ x 900′ x 30′ WITH 42′ CLEARANCE TAIL GATES. THE 144,000 SQUARE FEET OF THE MOST FUNCTIONAL HANGAR FLOOR SPACE EVER CONCEIVED HAS AIR, WATER, AND POWER WITHIN 30 FEET OF ANY FLOOR POSITION. SAVE TIME—SAVE MONEY—SAVE WORRY.

THE WORLD'S MOST COMPLETE ONE-STOP SERVICE FACILITY

EXECUTIVE PASSENGER LOUNGE • HANGAR STORAGE • PILOT'S LOUNGE

Hangar

We are fully equipped and adequately staffed for:

Aircraft Overhauls	Custom Interiors
100-Hour Inspections	Complete Paint Jobs
Airframe Repairs	Weight and Balance
Radio Installations	Radar Installations

Shops & Stores

In addition to hangar facilities we have 280,000 sq. ft. of fully equipped, properly staffed shops and stock rooms to perform:

Engine Overhaul	Instrument Overhaul
Accessory Overhaul	Carburetor Overhaul
Propeller Overhaul	Oil Cooler Overhaul
Magnaflux Inspection	Zyglo
X-Ray	Plating
Machine Shop Work	Upholstery
Sheet Metal Repairs	Custom Woodwork
Plastic Fabrication	Engraving

Manufacturing

American Airmotive Corporation manufactures:

Airstar Door	Kits for "T" Category Conversions
Baggagemaster Door	C-46R Transport
Airline Buffets	NA-75 Agricultural Aircraft

SPARE PARTS

Our inventory of spare parts for reciprocating engines and reciprocating engine-powered aircraft is the largest in the world, and there is an 85 per cent probability that we can fill your orders from our shelf stock.

AIRCRAFT SALES • COLLINS RADIO • PARTS SALES

American Airmotive
CORPORATION

C.A.A. APPROVED REPAIR STATION #3606

P.O. Box 187, MIAMI INTERNATIONAL AIRPORT, FLORIDA

Member

Circle No. 41 on Reader Service Card

Helicopters for Business

U. S. and Canadian Firms Buy Jet Helicopters for Commercial Work

Petroleum Helicopters, Inc., of New Orleans, La., and Autair Helicopter Service, Ltd., of Montreal, Canada, purchased Alouette II jet-powered helicopters from Republic Aviation Corp.'s helicopter division.

The Autair Alouette marks the first commercial jet helicopter operation in Canada. D. W. Conner, Autair president, says his firm will use the jet copter on power line construction work. patrols, hydrographic surveys and to carry freight and passengers over the area of Quebec and eastern Canada it services.

Robert L. Suggs, Petroleum Helicopters president, said his firm will operate the Alouette primarily to service offshore oil rigs in the Gulf of Mexico. Trial runs in the Bayou Boeuf area. the company's most difficult, proved successful, he said.

Conner singled out the Alouette's ability to operate in a wide range of temperatures as a key factor in his firm's utilization of the craft. Autair flies in a dry climate where the temperature drops to 55 below zero F. (except in summer months when Montreal has hot temperatures). In contrast, Petroleum Helicopters operates at low altitudes with moist, high temperatures from 90°F to 105°F.

The Alouette, a five-place, medium-range copter, recently broke six world altitude records in France. It is the first of its kind to be certified by the CAA here for commercial use.

The ability of the turbine-powered helicopter to takeoff immediately after starting the engine in the extreme cold of the northern area at altitudes as high as 9,000 ft. is another important operational factor, Conner explained. Conventional reciprocating engine helicopters and aircraft require a considerable warm-up period prior to flight under similar temperature conditions, he said.

Republic reports that the Alouettes in service now have required only one-half hour of maintenance time for every hour of flight, as contrasted to the U. S. average for conventionally powered helicopters which is as high as eight hours of maintenance per hour of flight.

IFR Operation of Helicopters on Airways Being Tested by CAA

Helicopter operation under instrument flight rules and on an airway is being demonstrated by the CAA in a series of tests. The first such formal tests to be made originated at Patuxent River, Md.

The tests are being flown in a Sikorsky S-58 with instrument modifications including ILS equipment, automatic stabilization equipment and other electronic gear including all airborne radio equipment currently operated by air carriers using the common system.

Main problems being investigated are: minimum IFR en route altitudes, separation standards, weather minimums at destination and alternate, airman standards and other questions associated with air traffic having both fixed and rotary wing aircraft.

One of the major purposes of the investigation is CAA's desire to determine safety aspects of the problem of mixing both fixed and rotary wing craft in normal instrument traffic.

And How Does Your Salary Grow?

An agreement for increased compensation has been signed by Chicago Helicopter Airways and its pilots, the Air Line Pilots Assn. announced.

The agreement also includes a pension program and changes in working conditions highlighted by establishment of a flight time/on duty time formula.

Under the agreement, compensation will range from $400 a month for a beginning copilot to a maximum $1,118.50 per month for a senior captain flying the largest equipment. Previous maximum was $1,095.23. The agreement became effective August 1 with pay increases retroactive to February 1.

British Sycamore Aids Road-Builder

John Lain and Son, contractors, are using a Bristol Sycamore to help carry out a road-building contract, the largest of its kind ever awarded in Britain to one company.

The helicopter has been used as a vital link in the chain of communications up and down the length of the new London-Yorkshire Motorway. It is one of the few times that a helicopter has ever been used in the United Kingdom on a major civil engineering project.

A quick, up-to-the-minute survey of such a vast undertaking is impossible by conventional means, as much of the 53-mile Motorway passes through remote countryside, inaccessible by existing roads, and surface transport is necessarily slow.

With Bristol helicopter test pilot Bob Smith at the controls, John Michie, project general manager in charge of operations, can take off from the tiny landing site just outside his headquarters at Newport Pagnell, fly over the entire project and be back at his office desk 90 minutes later. To do the survey by car would take him the better part of four days, he says.

"We have had to organize this business more or less on military lines—as if we were doing a reconnaissance over a battle area," says Michie. "Having the Sycammore is a great boon, as we can marry up the paper work with what actually is going on. The road is divided into four main sections of roughly 13 miles each. If anything crops up on one of the sections, the section manager and I can take a flight over the trouble spot and sort things out there and then."

"It is amazing," Michie added, "what you can do with a helicopter when it comes to a job as big as this one, and I am glad that we have been the first in the field (England) to push ahead with the idea." End

LUXURIOUS "RED CARPET" SERVICE ON THE NATION'S FASTEST AIRLINER

Six-mile-a-minute DC-7 service. Restful, gracious cabin appointments. Superb meals and a club-like lounge. Snack trays. Personalized attention that's friendly and prompt. This is United's famed Red Carpet* Service—extra luxury at no extra fare. With this important plus: you enjoy the smooth on-time reliability of Mainliners® equipped with weather-mapping radar. For reservations or information, call United or your authorized travel agent.

UNITED AIR LINES ®

FLY UNITED—THE RADAR LINE

*Red Carpet is a service mark owned and used by United Air Lines, Inc.

Circle No. 42 on Reader Service Card

The Rise and Fall of Aircraft Values

(*Continued from page* 57)

On the other hand, the buckshot curve in Figure 1, may also be interpreted as a (composite) depreciation curve. The prices here represent what the market will bear, and are more closely related to the tangible value inherent in the aircraft, rather than to any considerations of list price. The collective opinion has, in effect, said; "We think a certain age model is worth 5/8 of a new one and that the corresponding price in today's dollars should be $————." The price structure has automatically taken into account *all the factors* (except rate-of-inflation). If today's factors represent an average degree of "normality" then this curve shows normal depreciation. An extension of this curve will give a "static" forecast (all other factors being equal) for tomorrow's prices. . . . This is the starting point for the guessing game.

The two analysis methods give approximately the same result except where there has been a marked change in new prices . . . . or a sudden and radical influence on the historical depreciation curve. Inflation is of course not the only cause for price increases in new aircraft. If the increase is due to improvements in the airplane, then one must either assess and correct for the improvements . . . . or better yet, stick to a specific model.

Will depreciation curves be common knowledge in the future? We should first remind ourselves that reasonably accurate curves for the smaller aircraft are already here. The key to a depreciation curve lies in the available number of price listings. How many aircraft of a given model will be produced, flown, and resold? If the forecasts for business expansion are correct, then we should expect depreciation curve to be much more common in the future than at present.

Will these curves be stable? Models which are limited in number may remain fairly unstable for some time. Continued inflation (or deflation) may also cause a long-term drift in the general price structure. Certain factors, however, point to an improvement in short-term stability.

Looking into the future we have the question; "Are tomorrow's airliners suitable for business aircraft?" After the Convair, the Martin, the F-27 and the Viscount . . . . then what? The airlines do not appear to be headed in our direction . . . . DC-7C's and Boeing 707's are not going to sell like hotcakes to the average businessman. The equipment problem may someday be exclusively ours . . . . free from the effects of the second-hand airliner.

A large market tends to create stable prices . . . . an aircraft which is overpriced is not likely to be sold if there are 1,000 identical models for sale at a lower price. A large industry is also better able to resist such things as the dumping of military surplus models into the market.

Your answer to price stability depends, in a large measure, on the future size of the business aircraft industry.

Ed. Note: The views expressed herein are solely those of the author based on his experience in the aviation consultant and management field.

VPM

(*Continued from page* 61)

on a downtown to downtown basis) of various models of popular business airplanes, with one hour added to their flight time at cruising speed. The notches account for gas stops at appropriate intervals.

Graph B shows actual airline performance (on a downtown to downtown basis) from Oklahoma City—a major airline route city to four classes of destinations:

1. major cities
2. middle cities
3. small cities
4. all cities

These airline speeds are based on actual scheduled timetables with a two hour allowance for "downtown to downtown" travel. It is noticeable that the speed varies with the distance traveled and also very widely with the class of destination.

This chart is for one class of base city. In the VPM study, there are separate charts for five other classes, varying from a hub city to a rather remote location. From the other charts, it is clear that there is another substantial variable—the city of departure.

Putting the business aircraft chart together with the airline chart (Graph C) makes is possible to determine the distances in which a particular business airplane has an advantage over the airlines.

It is also possible to determine for any given distance, the net average trip speed (downtown to downtown) for a specific business airplane and for the competing airline service to any class of destination.

With these factors determined, we at Cessna can then calculate the time saved and with the number of people known and the value of their time known, it is then possible to determine how much money is involved and the "value per mile."

With the VPM study, it is possible to determine precisely how much money can be justifiably spent for a given business airplane.

The VPM study is equally applicable to any airplane situation and no doubt will be of considerable interest to many corporate flight operations. For the first time, it will give them a means of measuring and accurately illustrating the value of their flight service to their company. It will help in the general evaluation of all business aircraft flight service and will also help to determine with greater accuracy which airplanes is most appropriate for a specific job.

". . . SERVED IN A BRIGHT TUREEN" TO NBAA MEMBERS AND GUESTS BY SKYWAYS AND CAMPBELL

BOUILLON-ON-THE-ROCKS *makes a refreshing break enroute whether airline passenger or company executives and their guests. Note exceptionally attractive business aircraft galley. ("Campbell's-on-the-Rocks" service was a feature of the* SKYWAYS *suite at NBAA Phila. Meeting)*

Circle No. 72 on Reader Service Card

Grit Printing

(*Continued from page 38*)

train—or drives his automobile." T company's slogan is "printing servi with the speed of flight."

Booth and his organization speciali in creative ideas and services. Clie are told, "We can be in your office quickly as your local printer." He al points out to clients that they have t benefits of air transportation wh emergency services are needed. small town customer in western Ka sas listens for the Grit plane. Wh the airplane flies over town, the cu tomer knows his printing order aboard and he hustles out to the lan ing strip and, within a few minutes t customer has his printing order and on the way back to town.

"Clients like to deal with compani who are modern and up to date in the thinking. Although the client may n own an airplane or even have a desi to purchase one, he usually admir the company that does, and this pa off," Booth said.

While 95 percent of the airplan use is for business, Booth does casionally take his family to Colora for a week-end. The trip requires hours hard driving by automobile, b the 182 makes it in three hours a 45 minutes.

"There shouldn't be any question anyone's mind about how we pre to do our traveling," Booth adds. "T airplane is the best thing that ev happened to us."

Stewart M. Ayton, VP Sales (left), and W. E. Richards, VP Operations, are key figures in 31-year-old Atlantic Aviation

86 planes fly for Atlantic Aviation insured with INA's extra value

One of business aviation's biggest commercial operators is Atlantic Aviation. With installations in Boston, New York, Philadelphia, Lynchburg, Va., and Wilmington, Del., Atlantic sells, charters, leases, repairs, stores planes; instructs and furnishes pilots and crews.

The exposures to loss in this complex undertaking are minimized by carefully tailored Insurance by North America, the nation's leading independent underwriter of aviation insurance.

Coverages include aircraft hull and liability, airport liability, products liability, and hangarkeepers legal liability.

Among the reasons why this successful company, like many others, turns to INA is *extra value*—capacity, broad coverage, safety inspections, prompt claims service in 102 cities, 20,000 agents.

INSURANCE BY NORTH AMERICA INA®

INSURANCE COMPANY OF NORTH AMERICA • PHILADELPHIA

Circle No. 43 on Reader Service Card

ALL-CHANNEL
VHF COMMUNICATIONS

WITH REVOLUTIONARY
ALL-NEW
TRANSISTORIZED POWER SUPPLY

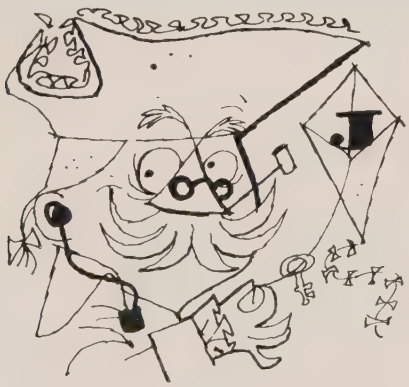
- 90-360 channel transmitter (50 kc spacing; 118-135.95 mc)
- 90-560 channel receiver (108-135.95 mc)
- Permits crystal-controlled tuning to VOR/LOC frequencies and simultaneous glide slope channeling.
- Permits SCS, DCS or completely flexible cross channel tuning.
- New transistorized power supply saves space and 4 pounds weight.
- CAA TSO'd for scheduled airline use.
- 22 pounds total weight, ½ ATR.

Send for new descriptive brochure.

narco

NATIONAL AERONAUTICAL CORP.
Fort Washington, Pa.

Circle No. 44 on Reader Service Card



Cap'n Sharp Says:

"Ben Franklin Flew Here!"

It was only a kite—but Ben Franklin got aviation off the ground in Philadelphia. No wonder the NBAA picked Franklin's town for the 11th Annual NBAA meeting, September 22-24. See the Jeppesen display for a complete line of flight kit(e)s—and Avigation Products and Services.

Jeppesen & co.

• AIRWAY MANUAL • CR COMPUTERS
• RADIO AIR-ROUTE GUIDE • FLIGHT CASES
STAPLETON AIRFIELD, DENVER 7, COLO.

Circle No. 45 on Reader Service Card

Sales Volume Doubled

(*Continued from page 49*)

considerations were based on time and expediency.

Our concentrated sales effort was directed into the Midwest and far West during the fall and winter months. To accomplish our objective, we felt we must have an all-weather airplane and one equipped for instrument flight. We did not feel that it would be a good calculated risk to endeavor to accomplish our mission with a single-engine airplane.

It was further decided that we should employ a full time, fully qualified pilot, preferably a young man with an engineering background and growth potential. We also believed we could develop our pilot into a sales engineer by training him on trips with our sales manager and other members of the sales department.

Armed with decisions, cost figures and projected sales, I made the presentation to the board of directors. They felt the purchase should be delayed because of the cost involved. I was in favor of buying then because I felt the airplane would pay for itself and give us the increased volume of business needed. The board was uncertain because of our size and financial standing at the time of purchase; however, they did agree it was a good calculated risk. After studying the projected sales results, they reluctantly approved the idea. In September, 1957, we purchased a new Cessna 310.

We hired Warren Harmon as our pilot. He is an ex-Air Force pilot and also holds multi-engine and instrument instructor ratings as well as an Air Transport Rating. I assist him from time to time as co-pilot and am also working on my instrument rating.

After operating our airplane for almost a year, it is interesting to compare the results with our projections. The last 10 months have proved what a work horse the Cessna 310 can be when the pressure is on. We have averaged 75 hours per month and have lost only three days during the entire period because of weather.

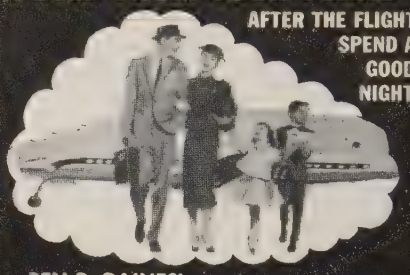
We have covered the states of California, Nevada, Idaho, Arizona, Utah, Colorado, Montana, Wyoming, New Mexico, Kansas, Oklahoma, Texas, Louisiana, Arkansas, Missouri, Illinois, Kentucky, Tennessee, Virginia, North and South Carolina, Georgia and Alabama, with occasional trips to Pittsburgh and other eastern cities.

Prior to acquiring the airplane, we were covering only five states. We are now able to serve a 25-state area across the entire southern part of the U. S. *Sales volume has doubled since we acquired the 310.*

We have put over 500 hours on the airplane at a cost of $19.20 per hour or roughly two and one-half cents per mile. The following shows a breakdown of exactly how we use the airplane:

Customer calls	80%
Deliver goods	1%
Emergency pick-up of supplies	1%

LUXURIOUS LIVING
A STEP FROM YOUR PLANE



BEN B. GAINES'
MIAMI SKYWAYS MOTEL

• 150 Air Conditioned & Heated Rooms • Radio, T.V., Private Bath and Shower in every room • All Rooms Soundproofed • Entertainment Nightly • Coffee Shop • Restaurant • Cocktail Lounge • 2 Swimming Pools (one Junior size) • Cabana Club • Solarium • Beauty Parlor • Barber Shop • 24-Hour Hotel Service • Ample Free Parking

Write for Illustrated Brochure & Rate Schedule

Directly opposite Miami International Airport
2373 LeJeune Road • Miami, Florida

Circle No. 46 on Reader Service Card

WELCOME
N.B.A.A.
from
GRAUBART AVIATION, INC.

Purveyors of EXECUTIVE and PERSONAL Aircraft

GRAUBART AVIATION, INC

540 No. Lake Shore Drive
Tel: MOhawk 4-6260
Chicago 11, Illinois

Circle No. 47 on Reader Service Card

THIS PROP-JET CONVERSION IS GOOD BUSINESS FOR EVERYBODY!

THE ELAND TURBO-PROP CONVAIR CONVERSION OFFERS

1 *Reduced operating costs*

2 *Greatly increased block speed*

3 *Increased range*

4 *Maximum reliability*

The Passenger—
gets a smoother, faster, quieter ride.

The Operator—
gets greater economy, smaller overheads.

The Engineer—
gets quicker, simpler (and cheaper) maintenance.

NAPIER ELAND TURBO-PROP

NAPIER ENGINES INC.
Suite 909, Dupont Circle Building, 1346 Connecticut Avenue, N.W., Washington 6, D.C. Tel: North 7-9300
A SUBSIDIARY OF D. NAPIER & SONS LTD · LONDON · ENGLAND

A Member of The ENGLISH ELECTRIC Aviation Group

Circle No. 48 on Reader Service Card

Attend sales meetings	8%
Service calls and engineering visits	8%
Personal	2%
	100%

The airplane has been successfully utilized in service and engineering as well as in sales. A recent claim on a damaged shipment in Northern California was received from our distributor one morning. The next day our chief engineer and production manager were on the spot to straighten out the matter and within 48 hours they handled the claim and were back at the plant. Without our airplane, this would not have been possible.

Another unique application of our 310 is a vacation plan we have instituted for key management employees and their families. All of these people were on the job from 14 to 16 hours daily during the 30 to 45 days required to effect our plant move to Bryan. As a bonus for a job well done, the company gave each of them a vacation and the use of the 310 for round-trip transportation to any vacation spot within an 800 mile radius of the plant. This plan has proved to be one of the finest investments the company has ever made. It could not have been accomplished without the company plane.

From an engineering standpoint, we have made trips to other plants, FHA offices, architect contacts, testing laboratory calls, trips to suppliers and many other varied trips in addition to our primary objective—sales contacts. We have been able to bring key personnel from our distributor organization into the plant to visit with us and become more familiar with our operations. This has helped our relationship with distributors in the field. We consider these calls and trips plus value for us in the utilization of our airplane.

After seeing the results of the first 10 months with the airplane operation, the board now feels that it is an invaluable part of the company's producing power. Sales personnel are pleased because they are at home more nights during the week and are not traveling to and from sales areas on weekends. Families of our traveling personnel have a high regard for the airplane because husbands spend more nights at home and are not endangering their lives on the highways. All families of traveling personnel have had short rides in the airplane.

We sum up the results that we have achieved in using our Cessna 310 by saying, "we don't see how we operated successfully without it." It has been a sales and service tool far beyond our expectations.

Having kept very close records on our operation and maintenance costs, we find the overall transportation costs for our traveling personnel have been considerably reduced through the use of our airplane over any previous method of transportation.

We are dedicated to the proper use of light twin-engine aircraft in business and are most pleased with the costs and performance of our airplane. We plan to acquire an additional 310 in the near future to meet our expanded requirements. We are a member of the National Business Aircraft Association and want to utilize all tools and service at hand to enable us to fully appreciate the value of our airplane.

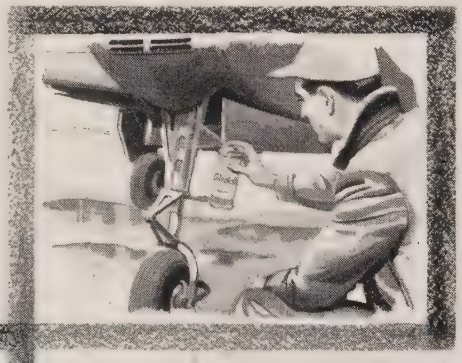
We believe that the purchase of our company plane was a calculated risk but we are happy to report that it is no longer a calculated risk, but a profitable investment.

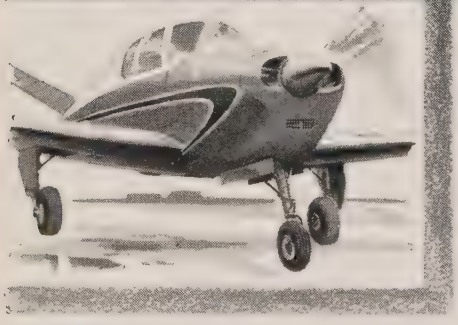
Windsor (Ont.) Airport Opened

The new terminal building at Windsor Airport was officially opened earlier this summer by Transport Minister George Hees. The new building covers an area of 36,000 sq ft, is two stories high with a modern control tower.

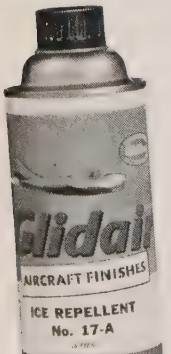
The runways have been extended from 3,000 ft to 4,550 ft and in recent months to 6,200 ft. Other fairly recent amenities added to the Windsor field are high intensity approach lighting, ILS, and a VHF omni-range.

GLIDAIR 17-A
Ice Repellent sprayed on landing gear and in wheel wells before takeoff on wet or slushy runways...





reduces ice adhesion during flight... helps keep gear free for safe landings!



GLIDAIR 17-A Ice Repellent applied to landing gear and in wheel wells helps prevent heavy adhesion of ice formed when moisture and slush picked up on takeoff freezes during flight. It sprays on quickly—no polishing necessary! And when sprayed on working parts, it also acts as a lubricant and offers protection against salt and chemicals.

GLIDAIR 17-A is already a popular favorite because it prevents icing on leading edges, antennae and struts, and helps maintain full prop efficiency. GLIDAIR 17-A polishes to a smooth, glossy silicone surface.

Keep several handy 16-oz. pressurized cans of GLIDAIR 17-A Ice Repellent in your plane. Available through most private operators, or write for the name of your nearest distributor.

QUALITY Glidden PRODUCTS

GLIDAIR FINISHES FOR EVERY PURPOSE
Aviation Sales Headquarters
THE GLIDDEN COMPANY
1833 South Normal Avenue · Chicago 16, Illinois

GLIDAIR A D M A

Ask for details on these additional GLIDAIR products: VISMATIC daylight fluorescent identification coatings, GLIDAIR Windshield Cleaner; also Enamels, Varnishes, Primers, Clear Dopes and Reducers, Pigmented Dopes, Lacquers and Special Products.

Circle No. 49 on Reader Service Card

ENGINEERING DEGREE IN 27 MONTHS

B.S. Degree, Aero., Chem., Civil, Elec., Mech. & Electronic Eng. (inc. Radio, TV). 36 mo. B.S. degree in Math., Chem., Physics. Prep courses. Demand for grads. 20 bldgs. Low rate. Earn board. G.I. appr. Enter Dec., March, June, Sept. Catalog. 2108 Wash. Blvd., Ft. Wayne 2, Ind.

Keeping pace with progress

INDIANA TECHNICAL COLLEGE

Now hear communications better with

WILLSON® #260 SOUND BARRIER

Here's the new, advanced SOUND BARRIER headset that cuts out engine and cabin noises, lets you concentrate completely on radio and flight operation. Especially ideal for use on Instrument Flight Rules where both hands are needed during rush periods.

SOUND BARRIER permits super-quiet communications in the cabin . . . when using the microphone, you talk in a lower tone than normal and as a result, your transmission is more audible. Liquid-filled vinyl cushions, a SOUND BARRIER *exclusive feature*, provide a noiseproof *contoured seal* around the ears, fits snugly, comfortably without undue pressure of headframe. Easily removable for cleaning and sterilizing . . . unaffected by temperature and pressure extremes . . . tested at —35° F and at 40,000 feet simulated altitude. Let SOUND BARRIER add to *your* comfort and flight efficiency, too.

See demonstrated at N.B.A.A. Meeting,

Skyways Suite . . . Bellevue-Stratford Hotel,

or write direct for details.

WILLSON®

PRODUCTS DIVISION
RAY-O-VAC COMPANY
MADISON, WISCONSIN

INSTANTANEOUS
VERTICAL SPEED INDICATOR
WITH
STEADY READABILITY IN TURBULENCE

APPROVED CDC

IT'S OUR SEAL AND THE SKIPPERS WORD

"FIRST SIGNIFICANT IMPROVEMENT IN 25 YEARS"

CAPT. CHARLES DAUDT
AMERICAN AIRLINES

SPECIFIED FOR

BOEING 707
LOCKHEED ELECTRA
USED EXTENSIVELY BY
CORPORATE AIRCRAFT

Specialties Inc. Ivsi* ACCELEROMETER ACTIONS SUPERIMPOSED ON THE BLEED RATE MECHANISM PROVIDES ACCURATE INSTANTANEOUS INSTEAD OF FALSE LAGGING INDICATIONS

MAJOR USES
1. BRACKET GLIDE SLOPE
2. TURBULENCE
3. PREVENTS OVERCONTROL
4. INSTRUMENT TAKEOFF
5. EXACT DESCENTS GCA APPROACHES
6. EXACT DESCENTS OMNI APPROACHES
7. ALTITUDE CONTROL EASE
8. FAILED HORIZON REPLACEMENT

INSTALLATION REQUIRES ONLY A STATIC SOURCE

CONTINENTAL DEVELOPMENT CORPORATION
*Trademark
P. O. BOX 252, HUNTINGTON, N. Y.

Circle No. 51 on Reader Service Card

Autopilot Omni Coupler

Weight—4 lbs
Current 1/4 amp
Immediately available

The ANC-2 Computer uses the most advanced techniques to lock the L-2 autopilot to the ARC CD-1 Course Director to fly en route omni with extreme precision. Write for folder.

DYNAVIA ENGINEERING CORP.
860 FABIAN WAY • PALO ALTO • CALIF.

Circle No. 52 on Reader Service Card

Air Defense Radar

(Continued from page 70)

ment. By avoiding duplication of radar equipment enormous savings result from initial and maintenance cost spread. The arrangement will reduce radar interference problems and result in better coordination between CAA and defense radar units. Savings in manpower and in frequency assignments will be considerable. Also, the needs of both civil and military traffic in times of emergency can be made to "mesh" smoothly and rapidly.

Of the total of 100 radar installations (long range) in the CAA's five-year plan, more than 50 will be joint use.

Safety Digest

(Continued from page 74)

Feather Factors

When should you push the button and shut 'er down? This is one of those timeless topics that falls within the purview of pilot judgment. I suspect that most of us have the order of sequence for "feathering" firmly in mind but could stand a review of the various possible situations leading up to the decision itself.

The next time the birds are walking or the conversation turns dull try swapping answers to the following quiz with your flyin' cohorts. We are indebted to the "MATS FLYER" for the material—they point out that the information is general in nature and that "each emergency situation must be assessed on its own merits."

Whatcha Gonna Do When:

1. Engine visibly rough. All engine instruments normal.
2. Engine backfires—BMEP fluctuates during backfire. All engine instruments appear normal.
3. Engine fire warning light comes on.
4. Fuel pressure drops to zero. Engine stops.
5. Fuel pressure drops to zero. Engine runs normally.
6. Oil pressure drops to zero. No other instrument indication of malfunction. Engine runs normally.
7. Oil quantity drops rapidly. All other indications normal.
8. Oil temperature rises. All other indications normal.
9. Engine cutting out. All instruments indicate normal.
10. Loss of throttle control.
11. Propeller overspeed.
12. Runaway propeller.
13. Engine fire in flight.
14. Engine fire while taxiing.

The Suggested Procedures Are:

1. Engine visibly rough. All engine instruments normal.

TRY: Changing mixture
Reducing MP,
Changing RPM,
Carburetor heat if carburetor air temperature is below plus 10,
Changing fuel tanks.

If roughness is reduced by any of the above don't feather. Fly at reduced power setting if necessary.

POSSIBLE CAUSES: Faulty ignition, loose cowling, internal damage, light icing, contaminated fuel, prop out of balance.

Feather only when vibration is excessive at a positive thrust power setting or, if flight can be continued safely on remaining engines consider feathering and starting again for landing.

2. Engine backfires—BMEP fluctuates during backfire. All engine instruments appear normal.

TRY: Rich mixture,
Reduced MP,
Carburetor heat if carburetor air temperature

below plus 10,
Select fuel from another tank.

POSSIBLE CAUSES: Plug fouling, faulty ignition, icing, contaminated fuel, lean mixture, broken valve, cylinder failure.

Feather only if backfiring continues despite of the above.

. Engine fire warning light comes

FEATHER. Scan. Use CO_2.

POSSIBLE CAUSES: Fire or malfunction of fire warning system.

Don't attempt to restart engine.

. Fuel pressure drops to zero. Engine stops. Retard throttle and scan.

TRY: Changing tanks,
Check crossfeeds,
Use boost—low then high,
Check all ignition switches on.

Feather if the above is ineffective. Shut off fuel to affected engine. (Recheck fuel system diagram for possible mistakes. If noted, reset fuel system controls properly and try restarting engine.)

. Fuel pressure drops to zero. Engine runs normally.

FEATHER. Don't attempt restart.

POSSIBLE CAUSES: Fuel line to pressure transmitter has worked loose or broken, or, inoperative fuel pressure indicator.

THE GAMBLE: Faulty instrument vs. broken fuel line is not worth the risk.

6. Oil pressure drops to zero. No other instrument indication of malfunction. Engine runs normally.

SCAN. If no oil leak is noted, continue operation and monitor closely.

CAUSE: Has to be the indicator, or the cylinder heat temperature will rise.

7. Oil quantity drops rapidly. All other indications normal.

Terrain Permitting—Level Off and throttle back.

SCAN. If smoke or fire noted—

FEATHER. If no smoke or fire, continue operation at low power and land at nearest suitable field. If oil will be exhausted prior to reaching a suitable landing field, FEATHER, then unfeather for landing.

POSSIBLE CAUSES: Oil leak, oil siphoning/oil ingestion or oil scavenge pump failure.

8. Oil temperature rises. All other indications normal.

TRY: Check oil cooler automatic controls; including circuit breakers and/or fuses. If O.K., open oil cooler doors with manual control.

POSSIBLE CAUSES: Malfunction of automatic circuits, oil dilution solenoid sticking, oil starvation.

(Note: If operating in extremely cold weather, oil in the cooler may have congealed which would require closing the oil cooler, close monitoring and gradual opening as the congealed oil is warmed.)

Feather if oil temperature exceeds the maximum for the particular engine, and an increase in cylinder head temperature is noted.

9. Engine cutting out. All instruments indicate normal.

TRY: Reducing power,
Adjust mixture,
Carburetor heat,
Boost pump on,
Check ignition on "both,"
Change fuel tanks,
Use prime.

Feather if none of the above is effective.

POSSIBLE CAUSES: Plug fouling, shorting of ignition system, contaminated fuel, internal engine damage, internal carburetor failure vapor lock.

10. Loss of throttle control.

TRY: Continuing flight to a suitable field at present power setting if not above normal rated;
If power appears excessive, climb to a higher altitude to reduce MP. Adjust RPM as necessary;
Shift to low blower.

Feather before letdown to landing.

POSSIBLE CAUSES: Throttle linkage broken or disconnected.

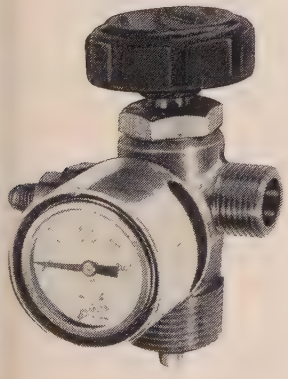
11. Propeller overspeed.

TRY: Reducing RPM;
Increase angle of attack and reduce airspeed to minimum safe control speed;

AIRBORNE OXYGEN VALVES

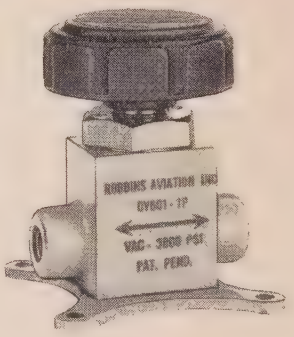
TWO IMPORTANT COMPONENTS FOR AIRCRAFT OXYGEN SYSTEMS DESIGNED ESPECIALLY FOR AIRLINERS AND EXECUTIVE AIRCRAFT

OV-600



- POSITIVE ACTION — NO LEAK SHUTOFF
- O RING SEAL OF SPINDLE AND BARREL.
- SLOW OPENING — NO SURGES.
- NO CONTACT OF ACTUATING SPINDLE THREADS WITH OXYGEN.
- FUNCTIONAL PARTS OF BOTH VALVES INTERCHANGEABLE.
- REPLACEABLE KEL-F SEAT
- LIGHT OPERATING TORQUE
- STEEL GAUGE GUARD
- FRANGIBLE DISC TYPE SAFETY OUTLET — NO FUSIBLE METAL BACKING.

OV-601



Send For Information

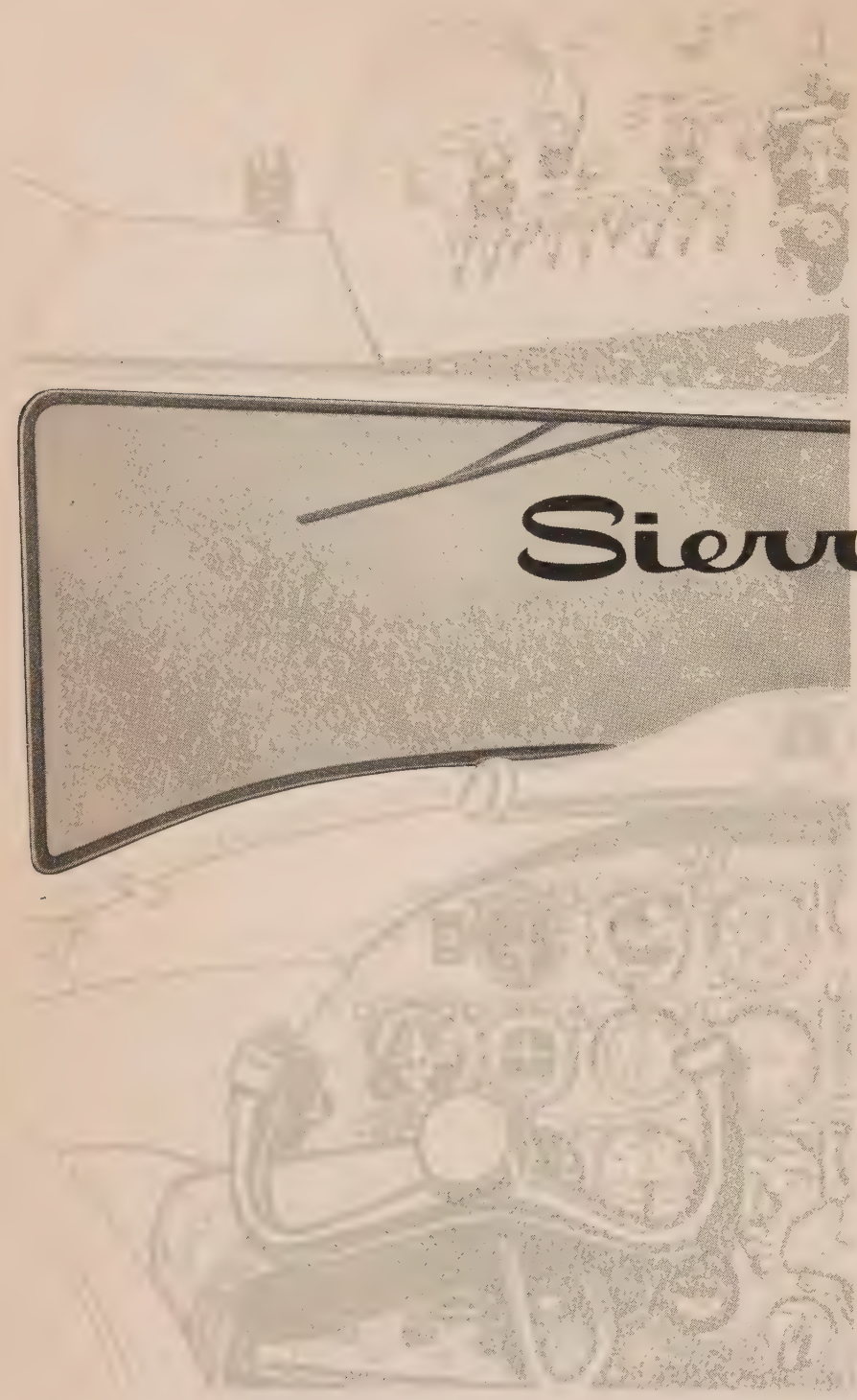
ROBBINS Aviation, Inc.

TWA TRANS WORLD AIRLINES

CV CONVAIR

2350 EAST 38TH STREET, LOS ANGELES 58, CALIFORNIA

Circle No. 53 on Reader Service Card



Now available for . . .

DC-3s

Lodestars

PV-1s

Sierracote

*electrically heated all glass laminated windshields**

1 Fog-free and ice-free visibility for *entire windshield area.*

2 Operates from standard 28 volt system—needs no heavy inverter or transformer.

3 Automatically controlled to assure uniform heating.

4 Reduces solar heat by partial reflection of infra-red rays.

5 Proved by qualification and service tests on *military and commercial aircraft.*

6 *Easy to install.* Shipped complete with sensing element, relay, installation instructions and 90 day warranty.

. . . . .

***Sierracote** heated windshields are now under development for other executive and personal aircraft.*

For greater safety and visibility, write today for complete information

The Sierracin Corporation
903 N. Victory Blvd., Burbank, California

☐ Without obligation, please send me complete facts on Sierracote electrically heated windshields.

TYPE OF AIRCRAFT _____

NAME _____

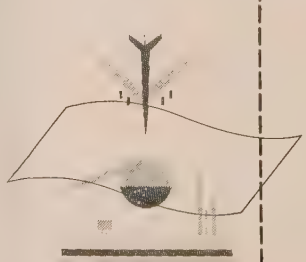
TITLE _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

RESEARCH WITH VISION



THE SIERRACIN CORPORATION, 903 N. Victory Blvd., Burbank, Calif.

Circle No. 54 on Reader Service Card

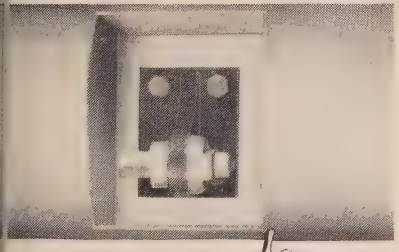
342, William Samuel Henson, an English in-
or, made a large scale model utilizing for
first time aerial screws and a horizontal
e structure. The illustration shows how this
el might have looked built to full scale
able to fly.

LASTING SECURITY

v good will it be 5 years from now?
answer to this question should be
etermining factor in the purchase
my insurance policy.
he United States Aircraft Insurance
up, of over 60 member companies
n combined multi-billion dollar as-
, serving the aviation market con-
ally for over thirty years is your
tive assurance of lasting security.
has been well said that a "U. S.
up" policy is the "soundest con-
t ever issued in the history of
rance."
e sure you have the benefits of
S. Group" protection. Coverage is
veniently arranged
rough your own
nt or broker.

ED STATES AVIATION UNDERWRITERS
INCORPORATED
) JOHN ST. • NEW YORK 38, N. Y.
Circle No. 55 on Reader Service Card

nsational Savings
IN
irframe Overhaul



ols That Get
o Those
rd to Reach
ckets
ill Not Damage
e Bearings

V TOOLS FOR
OVAL, INSTALLATION
) LUBRICATION OF
FRAME BEARINGS CUT
FRAME BEARING SERVICE
E TO MINUTES

ONARCH AIRCRAFT SALES
3311 EAST GAGE AVENUE
NGTON PARK, CALIFORNIA PHONE LUDLOW 2-6431
ircle No. 56 on Reader Service Card

Check circuit breakers if installed;
Try momentary feathering once. (Note: Tachometer lag can lead to excessive "hold-in" times on the feathering button, in which case there will be sufficient resultant RPM surge to aggravate the overspeed condition. This can turn an overspeed into a runaway!)

Feather, if the above is ineffective.

POSSIBLE CAUSES: Too rapid throttle advance, applying power rapidly in a dive, malfunctioning propeller controls.

12. Runaway propeller.
DO: Retard throttle;
Increase angle of attack to slow airspeed to minimum safe control speed;
Feather. If propeller will not feather, and terrain permits, descend to a lower altitude to reduce RPM. Try feathering again.

(Note: Accomplish the above as rapidly as possible. The best chance of feathering is at the lower RPM's.)

If unable to feather, chances are drag will be less windmilling than frozen. If controllability will be lost in your particular aircraft with the prop windmilling, or if fire and/or severe vibration is noted, freeze the engine and try intermittent feather as the RPM drops.

13. Engine fire in flight.
DO: *Feather*,
Close firewall shutoff valve,
Shut fuel off,
Set cowl flaps,
Activate extinguisher.

14. Engine fire while taxiing.
DO: Close firewall shutoff valve,
Shut fuel off,
Activate extinguisher,
Stop and evacuate,
Feathering is an unnecessary step.

OTHER CONSIDERATIONS: Recheck past writeups. Anytime an engine has malfunctioned in flight but has not been shut down, the approach and landing should be planned for the feathered condition—just in case. Write up all symptoms as soon as possible and in detail.

HOW WELL DID *YOU* DO?

DOT Airtronics Adds Collins Line

DOT Airtronics, at Zahn's Airport, Lindenhurst (Amityville, Long Island), New York is a CAA-approved repair station for all aeronautical radio manufacturers, servicing and installing in all sizes of business aircraft.

DOT has also been franchised as an authorized distributor for Collins Radio Company equipment and will handle their full line of lightweight up to standard airline-type equipment.

DOT uses a Cessna 182A as a service and demonstrator aircraft, equipped with the Collins 17L-8 Transmitter, 51X-3 Receiver and 344D-1 Omni Converter Indicator unit.

Introducing - - -
"TRANSISTORIZED POWER"
for NARCO Equipment

- Reduces Battery Drain By 1¾ Amperes
- Reduces Weight 2½ Lbs.
- Extreme Reliability
- High Safety Factor
- Eliminates Power Supply Failures
- Simplified Installation 4 Nuts To Tighten 4 Wires To Solder
- Designed Specifically For Narco Power Units
- Replaces Troublesome Vibrators & Heavy Power Transformers
- Unharmed by Direct Short Circuit
- Eliminates Noise and Hash Common to Vibrator Units

$39.95
MODEL NTP-1

Also available are models for all Dynamotor Powered Transmitters. Coming Soon direct replacement for Lear ADF-12's.

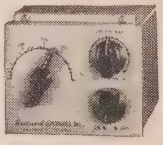
Introducing - - -
"SELECTOR SWITCHING"
Designed Specifically for SINGLE ENGINE and Light TWIN AIRCRAFT HAVING TWO OR THREE COMPLETE VHF RADIOS
CURRENTLY BEING USED BY *CESSNA* AIRCRAFT CO.

MODEL TS-1
ILLUSTRATED
LIST PRICE **$60.00**
MODEL TS-2
Same as TS-1 except does not provide antenna switching.
LIST PRICE **$40.00**

- Eliminates All Howls And Feedback Noise
- Eliminates Messy Hodge-Podge Of Switches In Cockpit
- Eliminates Up To Two Transmitting Antennas
- Works With Any Combination Of Radio Equipment
- Reduces Labor Cost of Radio Installations
- Provides Correct Electronic Control Of All Radio Equipment With One Simple Control
- A Must For The Progressive Operator Or Radio Shop
- Compact Size. Only 1¾"x2"x5"
- Lightweight—18 Ounces Including all Cables & Plugs
- Allows instant Removal and Exchange of Radio Equipment
- Single (⅜") Hole Mounting
- Beautiful Anodized Black and Silver Escutcheon Plate
- Made to Rigid Specifications, with Gold Plated Contacts, etc.
- Furnished Complete with all Connectors

"NEW LOW PRICE"
AVIATION WEATHER
In Your Car
An ENTIRELY NEW Transistor Operated Device, That Receives The Low Frequency Aviation Weather Sequences And Towers Everywhere, Instantly.

- No Wires To Connect
- Works With Any Car Radio
- Simple One Minute Installation
- No Tubes To Burn Out. Completely Transistor Operated
- Long Range Reception
- Compact Size 4½"x3½"x5"
- Neutral Grey Finish
- Mounts In A Jiffy Under Dash Or In Glove Compartment
- Completely Self-Contained
- Does Not Interfere With Normal Operation Of Car Radio
- Tunes Full 200 K.C. To 400 K.C.
- Receives All L.F. Weather, Range, Beacons And Towers



$34.95

AVAILABLE FOR DEMONSTRATION BY:
GENERAL AIRCRAFT SUPPLY CORP.
GENERAL AVIATION SUPPLY CO. (All Branches)
THE DON HORN CO.
THE NORMAN LARSON CO.
SKY-STORE
VAN DUSEN AIRCRAFT SUPPLIES (All Branches)
OR COMPTETE INFORMATION FROM

Boulevard ELECTRONICS, INC.
1229 West Washington Boulevard
Chicago 7, Illinois • TAylor 9-3405

Circle No. 57 on Reader Service Card

IN THE BUSINESS HANGAR

■ **VAN'S AIR SERVICE, INC.,** Winona, Minn., gave the National American Legion 680 Aero Commander a double engine change and majors, overhauled superchargers, installed complete boot deicing installation, anti-ice prop installation, DARE radio installation. Jim Parham, pilot.

Giddings & Lewis Machine Tool Co.'s Lockheed Lodestar had an engine change, 100-hr inspection, radio work. Doug Lionberger, chief pilot. (NBAA member.)

J. R. Watkins Co.'s DC-3 had an engine change and 100-hr inspection. Their 310 Cessna received an engine major and change and 100-hr. Jack Ollom, chief pilot. (NBAA member.)

Ray O Vac Co.'s 680 Aero Commander received engine change and 100-hr inspection. Bill Allen, pilot. (NBAA member.)

Hehr Manufacturing Co.'s Apache received 100-hr inspection.

National Can Retinning Co.'s Apache received 100-hr inspection.

DeKalb Agricultural Assn.'s Aero Commander and Navion both had 100-hr inspections. Hugh McCorkle, chief pilot.

Ipsen Industries' Aero Commander had 100-hr inspection. Bill Kastilahn, pilot.

Dairy Equipment Co.'s Super Twi Bonanza received 100-hr inspection. Pilot Wally Watson.

Gisholt Machine Tool Co.'s Sup E18 Beechcraft received its annual inspe tion. Rick Green, chief pilot.

■ **PACAERO ENGINEERING CORP** Santa Monica, Calif., completed empennag modification, wing and flap modificatio 1,000-hr inspection and other work Jacqueline Cochran's Lodestar, flown Tom Davis.

Burroughs Corp.'s Learstar was in fo misc. service work. Don MacDonald is chi pilot.

AVCO Mfg. Corp.'s chief pilot, Baile Case, flew in their Learstar for service.

Chance Vought Aircraft's Learst came in for service. Al Brill is chief pilo

Utah Construction's pilot Doug Ga neau brought in their Learstar for mi cellaneous service work.

C. B. Wrightsman's Learstar was flow in by his pilot, Al Franks, for miscellaneo retrofits to his Learstar Mark I.

■ **PIEDMONT AVIATION, INC.,** Win ton-Salem, N.C., completed 100-hr inspe tion and misc. repairs on Management Ser ice's DC-3, flown by Hap Wilson.

Magnaflux Corp.'s chief pilot, Steph Richards, had 100-hr inspection and mis repairs performed on the company's DC-3.

Tennessee Eastman Corp. had 100- inspection and misc. repairs performed their DC-3. Pilot is Leo Boyd.

Champion Paper Co. had their Cess 310 in for installation of long range fu system.

Pocahontas Fuel Co. flew their D18S for misc. repairs. Pilot is Bob Amundsen

Slane Hosiery Mills flew their AT-11 for 100-hr inspection and misc. repairs.

R. J. Reynolds' chief pilot, Herb Dr had 100-hr inspection performed on t company's E18S.

S & E Cafeterias' DC-3 was in for gine change. Chief pilot is Lawrence Ge

■ **THE GARRETT CORP'S AIR SEARCH AVIATION SERVICE** Di sion, Los Angeles International Airport, h in its hangar General Electric's Conv 340B for a 2,000-hr inspection and overha custom designed exterior painting, eng change and miscellaneous interior wo The plane was accompanied by Gene Be tie, Manager of Executive Aircraft Ope tions.

Phillips Petroleum, second DC-3, hand for 8,000-hr major overhaul, instal tion of new executive interior, major ra modification and exterior painting.

Napier Eland, turboprop CV 3 brought in by Angelo Gaultieri, Mana of Aviation Division, for combination exe tive/airline type interior, latest type sou proofing installation that includes dou windows, and exterior painting.

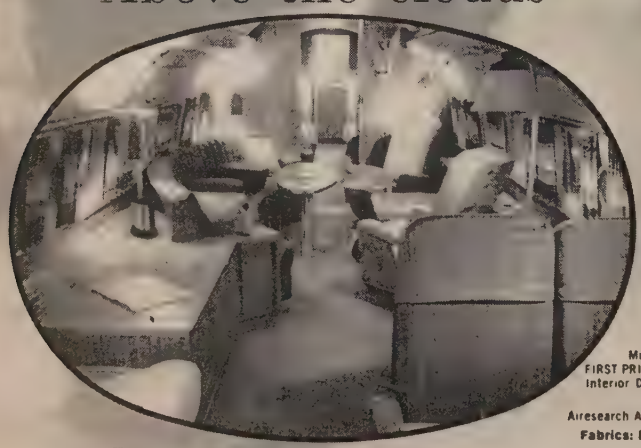
J. J. Ryan, B-25, piloted by Cha Bing, undergoing misc. engine maintena and Day-Glo safety paint scheme.

La Brea Securities, Cessna 310, gett Day-Glo paint. Joe Potter, pilot.

Lone Star Mud Co., of Dallas, Lodest receiving misc. radio and engine work.

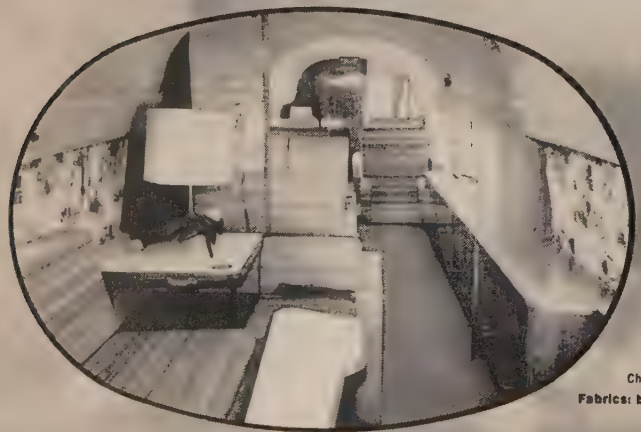
■ **CAPITOL AVIATION, INC.,** Spri field, Ill., completed work on Ideal Cem

Above the clouds



Design by Mrs. Elfrida A. Snyder FIRST PRIZE WINNER of 1958 Interior Design Competition. Executed by Airesearch Aviation Service Co. Fabrics: by Schumacher's

...that luxurious air



Design by Charles Butler Assoc. Fabrics: by Schumacher's

in the interiors of America's finest executive class planes. Achieved with brilliant design and

Schumacher's FABRICS

Wherever the atmosphere must radiate distinction, the choice is interior fabrics by Schumacher's. Unrivaled and superb selection for years of use . . . and compliments.

For samples and further information, write Contract Division

F. SCHUMACHER & CO. • 60 W. 40th St. • 535 Madison Ave. • 305 E. 63rd St., New York, N.Y.
Fabrics • Carpets • Wallpapers • Waverly Fabrics

Circle No. 58 on Reader Service Card

's Denver-based DC-3, including left en-
e change.

Sangamo Electric Co.'s Learstar re-
ved double engine change No. 1 inspec-
n, wiring for engine analyzer, Winslow oil
ers and oxygen system modification.

Cox Transit Co. Beechcraft C-50 had a
riodic inspection and Day-Glo trim.

Feldman Oil Learstar was in for 100-hr
pection.

Atwood Vacuum Machine Co. 680 Aero
mmander was in for double engine
nge, periodic inspection, ARC-210 com-
nications system and installation of
pitol Aviation auxiliary electric hydraulic
tem STC SA3-301.

Le-Tourneau Westinghouse Lodestar
s in for double engine change, periodic
pection, fuel tank reseal and double
ding gear change.

Radar repairs were made on Green Con-
uction Co. Super Ventura, Mead John-
's DC-3, Morton Salt Co. Ventura, San-
no Electric Co. Learstars and Solo Cup
. Learstar by Capitol Aviation's ap-
ved Radar Repair station.

Ray Neiswander had his 310B in for in-
llation of a Mitchell autopilot.

AERO ELECTRONICS, INC., Sky
rbor, Phoenix, Ariz., had Super 18 of
pacadora De Conserva of Los Mochis,
xico, in for installation of ARC Type 21
F, Scott Oxygen System, Aircraft Equip-
nt Mfg. Co. Cabin Refrigeration Air
dition system, Lear 12 Autopilot w/alti-
e controller, Sun Air Transceiver and
bin Radio.

Utah Construction Co. of Mexico had
ir 310 in for installation of Sun Air
nsceiver and ARC ADF-21.

Neil B. McGinnis Equipment Co. had
ir Bonanza in for installation of Collins
8 and 51X3 Communication system.

Vegetable Oil Produce Co., Inc., had
ir Twin Bonanza in for the installation
Bendix MKA7A 3 lite Marker Receiver
l Wright 90 Channel Communication
tem.

AERO TRADES, INC., Ronkonkoma,
. completed work on Joseph J. Ryan's
kheed Lodestar including periodic in-
ction. Chief pilot is Charles W. Bing.

News Syndicate, Inc.'s Grumman Mal-
d had complete resealing of integral fuel
ks. Chief pilot is William Warner.

Freeport Sulphur Corp.'s Grumman
llard had 100-hr inspection and other
essary work. Chief pilot is Dick Mc-
lly.

Benjamin Aircraft, Inc., had North
erican Jet F.J.1 assembled. Chief pilot
Charles Benjamin.

Lyon, Inc.'s Grumman Mallard re-
ved 1600-hr overhaul and additional
rk. Complete stripping and repainting of
erior. Complete reupholstering of in-
ior and additional radio work. Chief
ot is Elmourza Natirboff.

Daniel G. VanCliff's Grumman Mal-
d had misc. electrical rework and radio
ork. Chief pilot is Spencer K. Neale.

**HORTON & HORTON CUSTOM
ORKS INC.,** Fort Worth, Tex., has been
mmissioned to design, engineer and fab-
ate interiors for four Fairchild F-27s.
is initial group of F-27s is slated for
ivery during 1959, with the first plane
ng to the Bank of Mexico.
Departing from conventional corporate
interiors, design for the Bank's F-27 in-
cludes removable forward section for bulk
cargo shipments. Special guard seats are
engineered for fast installation on "cargo"
flights.

■ **SOUTHERN CALIFORNIA AI-
CRAFT CORP.,** Ontario, Calif., com-
pleted modernization of Matich Brothers'
twin-Beech. Plane was gold tipped on
nearly all metal accessories. Pilot is Francis
Drake.

■ **REMMERT-WERNER, INC.,** St.
Louis, Mo., installed dual A.R.C. Type 21
ADF, a Collins FD104 Integrated Flight
System, a Sperry C4 Gyrosyn Compass,
Collins 17L6-51R3, a custom radio panel,
aileron gap strips in the Houston Lumber
Super-92 DC3. Austin Goodwin is the pilot.

Surdex Corp. had a camera well and
mount installed in their Apache.

R. R. Schubert Co.'s D18S had an ex-
change of all control surfaces. Pilot is Dick
Biehl.

Jessop Steev Co.'s Super-92 DC3 came
to R-W in Toledo for installation of 200,000
BTU Janitrol heater with automatic heat
controls and ground blowers, short exhaust
stacks, aileron gap strips, and other work.
William Thompson is the pilot.

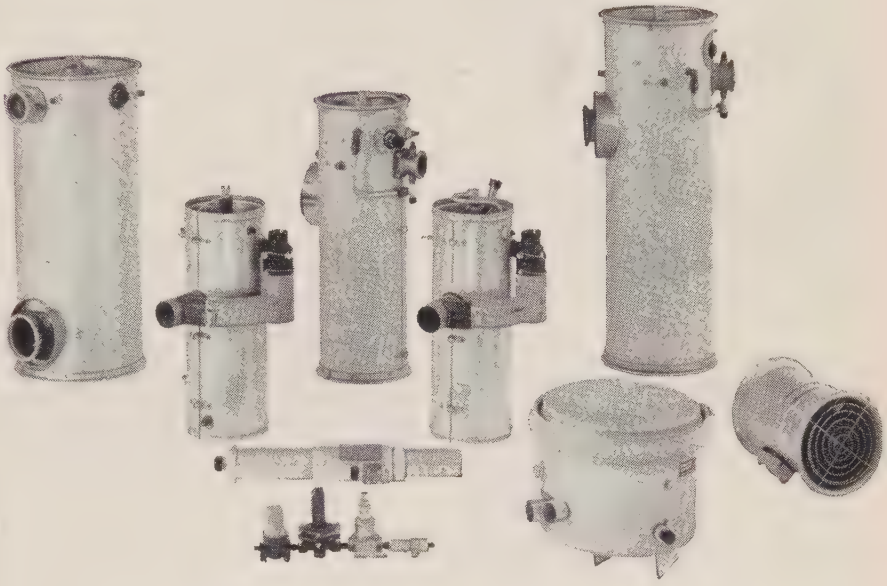
Carrier Corp DC3 had short exhaust
stacks installed. Floyd Graham is the pilot.

Freeport Gas & Coal Co.'s Aero Com-
mander had in engine change. Tom Jenkins
is the pilot.

General Insurors' Aero Commander
went to R-W in Pompano Beach, Fla., for
a complete new exterior paint job. Pilot is
Walter Westerfield.

U.S. Corps of Engineers' DC3 had an
engine change. Jules Austin is the pilot.

make your business aircraft complete

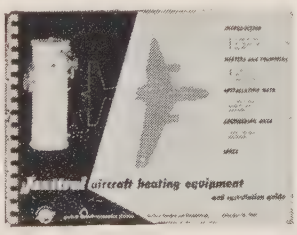


with a Janitrol heating system

Dependable Janitrol comfort is standard on a high percentage of today's business aircraft, for several solid reasons.

Far more than a luxury, it adds greatly to the utility, performance, and value of your aircraft. You can take advantage of optimum altitudes without discomfort. You get uniform cabin temperature, automatically controlled, plus dependable windshield defrosting.

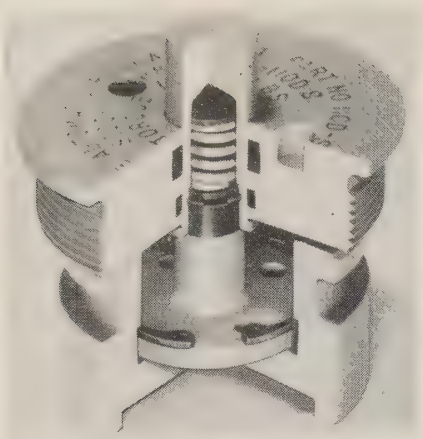
The initial cost is moderate; standardized Janitrol systems have been engineered for most business aircraft—with the same dependability as the airlines get in Janitrol equipment.



The installation is routine. Many mod centers are equipped to install Janitrol systems, using standard proven components from the complete line, right out of stock. Heaters range in capacity from 25,000 Btu/hour on up. Get the story from your mod center. Or write us for a free copy of the 60-page Janitrol Aircraft Heating Catalog. Janitrol Aircraft Division, Surface Combustion Corp., 4200 Surface Drive, Columbus 4, Ohio.

JANITROL®

Circle No. 59 on Reader Service Card



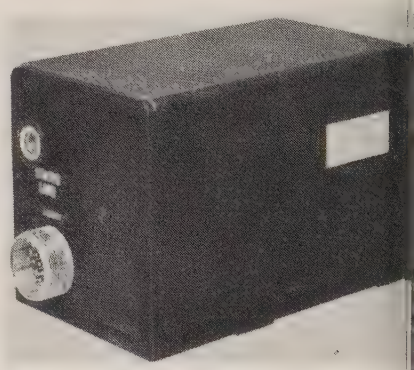
Automatic Brake Release Unit

Seat Belt Buckle is Non-Skid

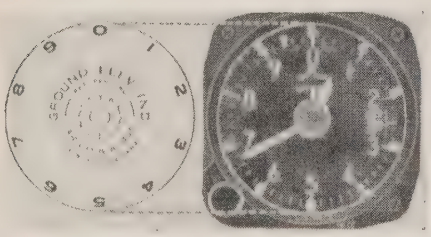
Aero Serve Table

New Oxygen System Valves

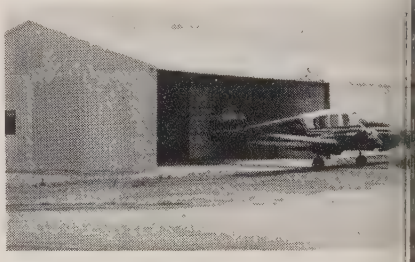
Radome for C-46



Barometric Altitude Controller



Ground Elevation Indicator



Light Plane Multiple "T" Hangar

nu-avi-quip

Automatic Brake Release Unit

An automatic self-adjusting brake release unit for Beech 18-S aircraft is in quantity production. CAA-approved, the unit is guaranteed by the manufacturer to eliminate brake drag.

Similar units are claimed to have been in use on military and other civilian aircraft for the past eight years. It replaces the piston and cylinder head on hydraulic disc brakes. By eliminating brake drag, the unit permits shorter takeoffs, easier taxiing and ground handling, and increases tire and brake life. No adjustments or maintenance are necessary.

Circle No. 60 on Reader Service Card

New Oxygen System Valves

The new Robbins OV600 Oxygen Cylinder and OV601 Line valves are especially designed for airborne service on executive as well as airline aircraft. The valves are slow opening and positive acting, eliminating instantaneous pressure surges downstream of the valves when operating at max rate.

"O" rings are used for the spindle seal, giving uniform feel regardless of length of service. The spindle is stainless steel seating on a Kel-F plastic seat that provides positive shut-off, and overtorquing does not damage the rugged valve or affect its operation. The working parts are interchangeable between the two valves, a maintenance advantage.

Circle No. 61 on Reader Service Card

Ground Elevation Indicator

Most single engine and light twin business aircraft operate with one altimeter. Mental arithmetic with its possibility of grave human error must be resorted to in landing approaches above sea level. A Ground Elevation Indicator made of clear plastic with brig yellow numerals that do not interf with regular markings is superimpos on the altimeter face in minutes wi out tools.

Circle No. 62 on Reader Service Card

New Seat Belt Buckle is Non-Skid

Recent developments in seat b buckles have resulted in a new meth of positive, metal-to-metal closure. T newest type employs a metal link, se to one end of the belt webbing wh locks into a metal buckle, secured the opposite end of the webbing.

The design offers a simple, one-ha adjustment operation of the l buckle.

Extremely light weight, the buc is a combination of chromeoly steel a aluminum, satin finished. The b have a minimum holding strength 6,000 lbs. Most commercial belts h

m action of serrated metal closing
nst webbing to secure the belt.
Circle No. 63 on Reader Service Card

ome for C-46 Aircraft

radome designed for C-46 aircraft
n production by McMillan Indus-
Corp. The installation requires no
lage modification aft of the for-
l bulkhead. The complete kit con-
s either a C band or X band sand-
radome shell with integral air
and all required hardware includ-
a hinged antenna bulkhead. It will
mmodate all X and C band radar
ems with antenna diameters from
o 22 inches. The radome can be
ied in less than one minute, with
special tools required, leaving the
r operational for test purposes.
assembly is CAA certificated.
Circle No. 64 on Reader Service Card

o Serve Table

onstructed of aluminum and for-
, a dining and writing table that
passenger can set up by himself
down on crew service demands, an
ational safety factor in today's high
ic density. The table fits easily into
removable armrests of Aerosmith's
units.
Circle No. 65 on Reader Service Card

ometric Altitude Controller

Barometric Altitude Controller,
itive to minute variations in static
sure, maintains an aircraft at a
tant barometric altitude. The con-
er operates in the range of from
is 1,000 feet to plus 60,000 feet.
ie controller, which utilizes transis-
and other miniaturized compo-
s, is sensitive to plus or minus 2½
at sea level. At 60,000 feet altitude
represents a sensitivity of plus or
is 25 feet.
utside dimensions of the unit are
in. x 5 in. x 4⅝ in.
Circle No. 66 on Reader Service Card

ness Plane Multiple "T" Hangar

esigned and engineered for maxi-
n efficiency and fast erection, a new
tiple "T" Hangar is of cantilever
s construction and utilizes standard
abricated trusses and wall panels.
roof is supported by the panel
s, eliminating need for columns.
ach stall is completely partitioned
provided with top-hung, four-leave
's which slide behind each other in
tail stall of the adjoining hangar.
arrangement enables all doors to
pen at the same time.
ntrance openings are 39 ft, 10 in.
with a clear height of 10 ft, 10 in.,
iding easy entrance for light busi-
-type airplanes. Space is provided
he 20 ft-wide tail section for easy
ection and simple maintenance.
advantages of independent storage
tly expedite small business flying.
Circle No. 67 on Reader Service Card

Glass Fibre Reinforced Plastic Material for Airframe Covering

Eonite, a flexible, lifetime, glass fibre reinforced plastic material developed specifically for aircraft, is applied directly over the airframe and is no heavier than conventional dope-and-fabric covering.

Approved for use on control surfaces, Eonite does *not* require rebalancing.

It is composed of glass filaments, plastics, powdered metal and other materials. By laminating and chemically thermosetting these materials in position on the airframe, an extremely strong, insoluble, taut and light weight custom fitted cover results.

Wing sections covered with the substance have been subjected to a load equal to 21 G's without failure of the Eonite cover or attachments, although the wing section suffered severe structural damage. It has in excess of three times the CAA required strength for airworthy fabric.

Various parts of an aircraft can be covered with Eonite at different times without exceeding balance limitations.

Circle No. 68 on Reader Service Card

Cessna Rotating Beacons

Fin mounted rotating beacons that can be seen up to 70 miles away add safety to Cessna singles and twins. The silver coated lamp has a built-in baffle system which eliminates airframe reflections into the cabin and only weighs 23 oz in the single-engine model. Flash rate is the recommended 90/min at 45 rpm.

Circle No. 69 on Reader Service Card

New Electrically Conductive Windshield Coating Increases Executive Aircraft Safety

A complete windshield assembly designed to maintain visibility for pilots by preventing icing or fogging now is being produced by The Sierracin Corporation for executive aircraft.

Positive anti-icing and defogging is provided by Sierracote, a transparent conductive coating sandwiched between tempered laminated glass. Of special interest to pilots and owners is the ability of this windshield to operate from a standard 28-volt system without requiring heavy inverters or additional batteries.

Suitable for use in glass or plastic laminated windshields, Sierracote was developed originally for high performance military needs before being adapted to executive and private aircraft.

Sierracote windshields now are available for DC-3s, Lodestars, and PV-1s, and currently are in the prototype stage for Beechcraft's Twin Bonanza. Fabricated with flat or contoured surfaces, Sierracote windshields are supplied complete with sensing element, relay, simple installation instructions and full warranty. Because of its versatility, Sierracote can be incorporated into the windshield design of many types of aircraft.

Circle No. 70 on Reader Service Card

HARRY CONOVER
FLUOR CORPORATION

Put a Smile in Your Flying

The Difference Is

QUALITRON INCORPORATED

QUALITY

SPECIALISTS IN CUSTOM EXECUTIVE AND AIRLINE RADIO AND RADAR SYSTEMS

- **ENGINEERING**
- **INSTALLATION**
- **MAINTENANCE**
- **SALES**

A.R.C.
BENDIX
COLLINS
DARE
FLITE-TRONICS
NARCO
RCA
SPERRY
WILCOX
WRIGHT

Quality

MEANS

QUALITRON INCORPORATED

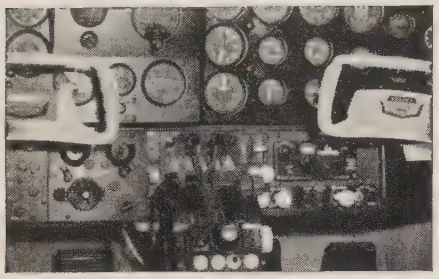
LOCKHEED AIR TERMINAL
2945 HOLLYWOOD WAY
BURBANK, CALIF.

ST 7-5963 **ST 7-9472**

Circle No. 71 on Reader Service Card

SKYMART

the Market Place for Aircraft Parts, Equipment, and Services



Custom radio and radar installations

CAPITOL AVIATION

Capital Airport, Springfield, Illinois

C. A. A. CERTIFICATE NO. 3760

Complete sales, installation, and service facilities for:
BENDIX • COLLINS • ARC • LEAR • DARE • NARCO

Our complete radio laboratory is equipped with specially built test facilities.

C. A. A. approved Class I and II.

New Bendix X-Band radar test and repair facilities also available.

- Around-the-clock line service and refueling.
- Authorized Cessna sales, parts and service.
- C. A. A. Class I powerplant repair station.
- Complete airframe service, C. A. A. Class I, III and limited Class IV (DC-3 and Lodestar).
- Low charter rates to *anywhere* on *your* schedule.
- "No-overtime" week-end service for scheduled work.

PHONE 4-3431
CAPITOL AVIATION, INC.
CAPITAL AIRPORT
Springfield, Illinois

V 58-2

Sensenich

PROP SHOP

Propeller Repair Service for your airplane

Specializing in Light Single and Multi-engine Aircraft

PIPER APACHE — PIPER COMANCHE
NAVION — GRUMMAN CONVERSIONS
TWIN NAVION — CESSNA 180—182
ROYAL GULL — CESSNA 310
BEECH BONANZA — BEECH TRAVEL AIR
TWIN BONANZA — AERO COMMANDER

DISTRIBUTOR OF
HARTZELL PROPELLERS & PARTS
Woodward Governor Service
Blade Deice Boots Installed

Service Hangar on Lancaster Municipal Airport
Approved Propeller Repair Station 3528
Sensenich Corp. • Box 1168, Lancaster, Pa.
• • • • • Phone: LOwell 9-0435 • • • • •

Advertising Rates
Skymart Section

$17.00 per column inch for one to five issues, $16.00 per column inch for six to eleven issues, $14.00 per column inch for 12 issues on contract basis. Contract rates for space units up to full page, for classified type advertising, available on request. Unless otherwise specified all classified advertising accepted with the understanding that it will be placed in the first issue closing after receipt of order. Classified forms close 20th of month preceding date of issue.

Full particulars on request.

SKYWAYS
425 Fourth Ave., N. Y. 16, N. Y.

AERO TRADES INC.

C.A.A. APPROVED REPAIR STATION #115 AIRFRAME CATEGORY CLASS I, CLASS III, LIMITED CLASS IV

Design Engineering. Custom Interiors. Experimental Modification. Radio & Radar Installation.

MacARTHUR AIRPORT
Ronkonkoma, Long Island, N. Y.
Tel. ROnkonkoma 9-8036 WOrth 4-7256

The Place to Stop

RALEIGH-DURHAM

North Carolina

STEP FROM YOUR PLANE INTO
LUXURIOUS COMFORT

Bill & Dorothy Dunn's

SKY HAVEN MOTEL

ON THE SOUTHWEST CORNER OF THE FULLERTON CALIFORNIA AIRPORT

Luxurious accommodations close to everything . . . main freeways, Disneyland, Knott's Berry Farm and many other points of interest. Every room air conditioned, and heated with private bath and shower, TV and beautifully decorated. Outdoor patio with two swimming pools (one for children).

- Reasonable rates for single or any size group.
- Free station wagon pickup provided.

Write for Illustrated Brochure & Rate Schedule
SKYHAVEN MOTEL • 4251 COMMONWEALTH, FULLERTON, CALIF.

AIRCRAFT FOR SALE. Reduced for immediate sale. Lockheed Lodestar. Completely equipped. Oxygen, rotating beacon. Many extras. $69,750.00. Fruin-Colnon Contracting Co., 1706 Olive St., St. Louis 3, Mo. Direct inquiries attention H. V. Gausmann, Pilot, or R. W. Christmann, Equipment Manager.

OXYGEN EQUIPMENT

SALES & SERVICE
REGULATORS—MASKS—VALVES
PORTABLES & CYLINDERS
FIXED INSTALLATIONS
GOVT. APPROVED REPAIR STATION

ZEP AERO Phone: ORegon 8-1161
EL SEGUNDO CALIFORNIA

Will Buy
used **BELL** G or H model
Helicopter

Give price, details, and specifications in first letter. Box #759 Skyways

---

AIRCRAFT RADIO

Maintenance • Engineering
Installation • Sales • Service

Superior Aircraft Electronics

CAA REPAIR STATION #4130
Lockheed Air Terminal—Hangar #3
Burbank, Cal. THornwall 8-1

SKYMART

KEEPS — THEM — FLYING

CAMCO

CENTRAL AVIATION & MARINE CORPORATION
MACARTHUR AIRPORT
SAYVILLE, N.Y.

OVERHAULING ALL AIRCRAFT ACCESSORIES!

- Starters
- Fuel Pumps
- Generators
- Carburetors
- Landing Gear
- Cabin Pressurization

Phone BA-7-1962
Ronkonkoma 9-8068

FOR SALE, TRADE, OR LEASE
LOCKHEED LODESTAR SER. #2561

Γ-6444, SOH 2,673, Annual 35—
ngines—P & W 1830-94—L 273
58—Excellent Radio, Gyrosyn
ompass, Zero Reader, Omni Mag,
5 Horizon, Direct Reading Fuel
auges, Edge Lighted Panel, Picture
indows, 80 Gal. Aux. Fuel.

$75,000.00

acific Northwest Pipeline Corporation
P. O. Box 1526 Salt Lake City 10, Ut.
DAvis 8-8252 Ext. 301

ACES

OVERHAUL • EXCHANGE • LEASE
ALL P&W ENGINE MODEL'S

R985 — 1340 — 1830 — 2000
R2800 M1 & M2
R2800 C Series

IMMEDIATE DELIVERY

E ORIGINAL M1 & M2 AS ENGINEERED
ACES COPIED BY MANY BUT NEVER
PLICATED BY ANY. CAA APPROVED RE-
IR STATION—POWERPLANT CLASS 2

WRITE, PHONE OR CABLE TODAY
SALES MANAGER

AIR CARRIER ENGINE SERVICE, INC.
P.O. BOX 236, MIAMI 48, FLA.
TUXEDO 7-2666

AERO COMMANDER
Factory Approved Service
C.A.A. Approved, Class I and III
Airframe Unlimited
Powerplant Limited
CARTER AVIATION
Byrd Airport, Richmond, Va.
Phone REpublic 7-4168 P.O. Box 6097

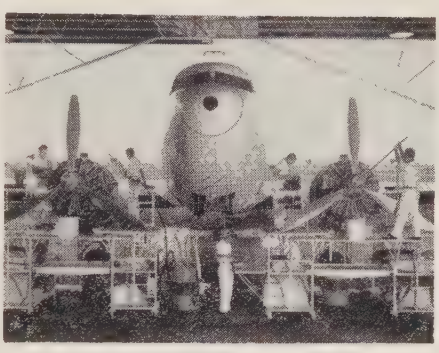
Executive Aircraft

Goose — amphibian. Immediate Delivery
New three bladed Hartzell full feathering props, all metal wing, new executive interior, new exterior paint. Fresh from executive conversion. Another Goose also available soon, nearing completion.

Super-92 DC3 — Executive design nearing completion.
Deluxe executive interior with luxurious appointments. Large cabin and picture windows, divans, galley, bar, tables, soundproofed. Collins and Bendix radio, radome, flush ADF loops, retractable tail wheel, lightweight landing gear doors. Early enough in work to incorporate some of your own specifications or radio.

Custom 18 — Nearing completion.
Will have luxurious interior with large windows, enlarged cabin, modernized front bulkhead and cockpit, special reclining seats, lavatory, snack bar. Custom panels, Collins & Bendix radio. Ready for your finishing details.

call PErshing 1-2260 in St. Louis



100 hour inspection in 1 day
in our
Wrap Around Shop

DC3-C47	$289	Lodestar	$289
D18, E18, C18	239	Aero Commander	189
Bonanza	79	Twin Bonanza	179

plus parts and repairs authorized by you

Remmert-Werner

Inc. of St. Louis Lambert Field
Inc. of Florida Pompano Beach
Inc. of Toledo Express Airport

Immediate Delivery
We stock, overhaul, and install

PRATT & WHITNEY	WRIGHT
R1830	R1820
—75, —92, —94	—202, —56, —72
R985	R1340

Lycoming—Continental

and our most popular DC3 engine
Super-92
ENGINE WORKS
Lambert Field INC. St. Louis, Mo.

INSTRUMENTS
OVER
ONE MILLION
AT WHOLESALE PRICES

3906 Burbank Blvd., Burbank, Calif.

SERVING THE INDUSTRY AS SUPPLIERS OF DOUGLAS PARTS AND COMPONENTS

FARRAR AVIATION
WE SOLICIT OPEN ACCOUNTS FROM WELL-RATED FIRMS

One of the world's largest inventories of
DOUGLAS DC-3 & DC-4 PARTS

5 WEST MAIN STREET P. O. BOX 113 ONTARIO, CALIF. YUkon 6-6746 CABLE ADDRESS "FARRAIR"

FARRAR AVIATION WUX
State Dept. Export Reg. No. 4528

SKYMART

FOR IMMEDIATE SALE or LONG or SHORT-TERM LEASE

The Best in Beechcraft

*1952 Executive Twin BEECHCRAFT D-18s

Completely equipped—dependable all-weather transportation. Full de-icing equipment. Zero time engines; Collins and Bendix radio. All in exceptional condition. Clean. $49,500

For further information or demonstration—write, call or visit;

SYRACUSE AIRCRAFT SALES, inc.
Hancock Field Syracuse, N. Y. GLenview 4-4464

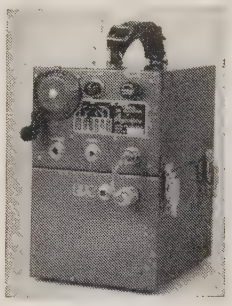
BEECHCRAFT Travel-Air—Twin Bonanza Distributors

Listings of available used aircraft for sale or lease will be sent periodically upon request. WRITE TODAY.

SAS

NEW *TUNABLE* VHF MULTIPHONE

By Skycrafters



MODEL TRV-128
With Battery Pack
Also Available
with
MULTIPOWER PAC
for
6/12 d.c./115 a.
14/28 d.c./115 a.

OUTSTANDING PERFORMANCE IN A 2-WAY PORTABLE RADIO

The only truly portable 2-way VHF communica tions unit for general aircraft use in . Powered Aircraft . . Gliders . . Helicopte

IDEAL FOR EMERGENCY USE.

The model TRV-128 VHF MULTIPHONE can used as a dry battery portable or with Mul power Pack can be plugged into any source primary power.

WRITE FOR FREE BROCHURE FROM

Skycrafters

2453 East Spring Street
Long Beach, Calif. Phone GA 7-8619

ADF CALCULATOR

Take the "head-figuring" out of ADF calculations with this handy, simple-to-use, slide-rule type calculator. It ties down the mental arithmetic. Just turn the scale to get the relationship between magnetic heading, relative bearing, and headings to and from the station. Get full use from your ADF! Send $2.00 in cash, check or money order for your ADF CALCULATOR and a reprint of Leighton Collins' article, "Getting the Most from Your ADF." Postpaid USA—Others include postage, shpg. wt. 4 oz.
NAVAIDS, BOX 1231-S Tryon, N.C.

NAVCO Inc.

Lambert Field
St. Louis, Mo.
PErshing 1-1710

$1,000,000 in Active Parts for Executive Aircraft

Douglas	Airframe Parts	Pratt & Whitney
Beechcraft	Engine Parts	Continental
Lockheed	Standard Parts	Wright
A.R.C.	Sperry	Accessories
Bendix	R.C.A.	Instruments
Collins	Wilcox	Deicers, Tires

AIREX Service

Aircraft Division

AIRMAR RADIO SERVICE, INC.

NOW

BUILDING A FIRST CLASS SHOP AT

HANGAR #12
NEWARK AIRPORT
NEWARK, N. J.
MArket 2-0782

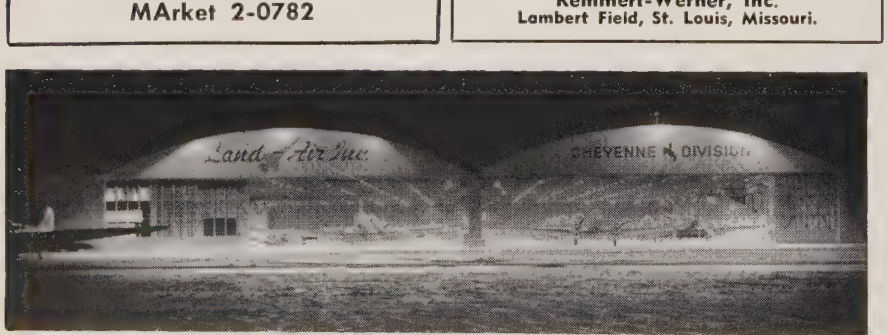
We Buy Used Aircraft
Light Twins or Larger
for resale or rework
as executive aircraft
Give all details in first letter.
Remmert-Werner, Inc.
Lambert Field, St. Louis, Missouri.

DeLuxe BEECHCRAFT SUPER E-18-S

Priced for Quick Sale

1955 Model. 7 place . . . 5 reclining chai Completely equipped for IFR, plus ma extras. Airframe—1620 hrs.; L. Engine 21 hrs.; R. Engine 478 hrs. Qualified A.T crew available with plane. Complete resur on request. $79,500.

Write SKYWAYS Box 764



CERTIFIED REPAIR STATION CHEYENNE, WYO.
CAA Certificate No. 3973
Unlimited Class I, III, IV Airframe & Class I Radio
with limited navigation

COMPLETE SERVICE

Cheyenne Division, Land-Air, Inc. Cheyenne Municipal Airport

Quality aircraft paint specialists
CAA approved repair station no. 3951
ZELAIR
DEFIANCE, OHIO
VENICE, FLORIDA
Airframe 1 & 3, Limited airframe Lockheed Lodestar, Powerplant 1

AIRCRAFT ELECTRONICS

A division of International Electronics Research C
CAA APPROVED REPAIR STATION NO. 3977
MAINTENANCE • INSTALLATION • SALES • SERVIC
Radio Class 1, and Limited
MUNICIPAL AIRPORT, LONG BEACH 6, CALIFORNIA
GArfield 4-8580, Ext. 21 NEvada 6-6884, Ext.

SKYMART

Sacrifice Sale — WING JACKS

FOR LIGHT PLANES

Completely recond. New Hoses, Seals and Check Valves Installed. Load Tested to Mfr's Specifications.

Beech — Navion, Etc.

Closed Hght.	36" or 32"	
Hyd. Lift	25"	25"
Screw exten.	12"	12"
Weight	220 lb.	200 lb.

Prices and Literature on Request Write or Wire

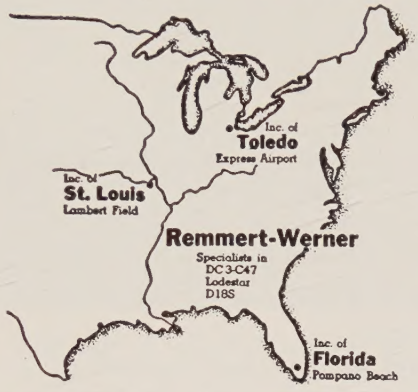
AERO TECHNICAL SERVICES

5444 W. Imperial Hwy. — OR 8-3570 — Los Angeles 45, Calif.

GRUMMAN SUPER WIDGEON

McKinnon conversion, 2 Lycoming GO435 engines, full instruments and radios. Must be sold. Will finance, lease, sell, or accept trades. Call, wire, or write:

EVEREADY
Box 638; Bpt. Ct.
EDison 4-9471



No operation is complete or secure unless all component parts are of the highest quality, ll service operations are competently and conscientiously performed.

If you are the proud producer of quality aviation equipment or services for the business lying market, SKYMART is your showcase.

If you have operational needs, SKYMART is the place to look to find the equipment you ant, the services to safeguard and facilitate your operation.

NOW DEAL DIRECTLY WITH OWNERS . . . In Stock Now for Immediate Delivery!

BEECHCRAFT C18S, D18S, E18S
One of each available. All Top Quality. Excellent value and excellent terms available.

CARGO C-46F AIRLINE DC-3 AND/OR CARGO C-47
Both available for sale with terms or for lease with lowest rates ever.

GRUMMAN WIDGEON
G44A Models with Ranger engines, or Custom McKinnon-Hickman Conversion available as a package. Finished product without an equal. And We Mean It! ! !

EXEC LOCKHEED VENTURA 265-285 MPH FOR THE PRICE OF A BEECH
Gorgeous New Horton & Horton interior, unequalled anywhere. Send for photograph.

SIKORSKY S-51 HELICOPTERS
CAA Four-place Commercial Licensed with fresh complete overhaul. Six left, with spares. Can be purchased individually "AS IS" if desired.

MILITARY SURPLUS AIRCRAFT
SNJ-7 (T-6G), SNJ-4. 1 PV-2 Harpoon. 2 Douglas B-26. 1 PBY-5A.— All to be wholesaled flyable with ferry permit, and at very cheap prices. Write or call for details.

GRUMMAN GOOSE
Zero time throughout. Like new. And We Mean It! ! ! New Plane Warranty.

HANGARS
120 ft. x 200 ft. clear span hangar. 28 ft. headroom. All steel structure plus **two-story** lean-to's 20 ft. wide on the long sides. Total 40,000 Sq. Ft. floor space. Substantial piece of Real Estate.

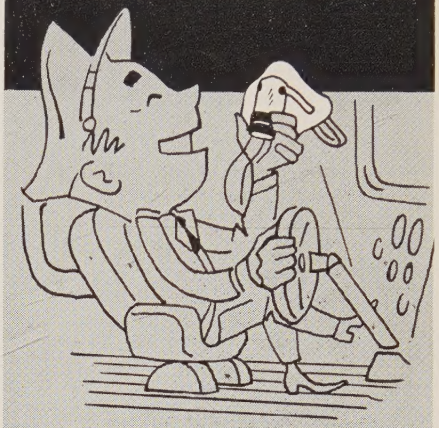
TRADE-AYER COMPANY
ANTHONY J. MING, LINDEN AIRPORT, LINDEN, NEW JERSEY
WAbash 5-3000

FINEST AIRCRAFT MAINTENANCE
vin Beech - DC-3 - Lodestar
A Approved Repair Station #3964
Class 1 & 3 No Limitations

SINCE 1937 **Page** AIRWAYS INC.
ROCHESTER AIRPORT
PHONE: FAirview 8-2720
ROCHESTER 11, N.Y.

RADAR
AUTOMATIC PILOTS, NAVIGATION & COMMUNICATION SYSTEMS
Collins, Bendix, Sperry, Lear, ARC, Wilcox

YOU arrive refreshed



WITH A

ZEP AERO OXYGEN SYSTEM

Zep Aero's outstanding new, light-weight, low-cost Oxygen Systems for executive aircraft will make your business flying **far more comfortable and safer** . . . give you greater economy and higher speeds at altitudes above 10,000 ft. You arrive refreshed to conduct your business after hours of flying without fatigue. Offering all the finest features available . . . fully automatic . . . simple installation and all new manufactured equipment. Oxygen Systems for both single and twin engine aircraft (1 to 20 people) are available and can be purchased in a fully approved, complete KIT. These Oxygen Systems are standard equipment on all Cessna, Beachcraft and Grumman Gulf Stream aircraft — Zep Aero supplies oxygen equipment for the 707, DC-8 and 880.

For further information fill in coupon and mail today.

Automatic Oxygen System for 1 to 5 people

ZEP AERO

Phone ORegon 8-1161

Zep Aero, Department 20, 113 Sheldon Street
El Segundo, California

Name _____

Address _____

City _____ State _____

The Law Behind the Skyways

by **Howard Newcomb Morse,** *Counsellor at Law.*
Member of the Bar of the Supreme Court of the USA

The Gray Zone

The requirements of certain pilot ratings are not directly proportionate to physical skill. Whereas a "commercial" is accepted as evidence of more accurate handling ability and operational knowledge than a "private" rating, the possession of an ATR (Air Transport Rating) imbues a conception of planning and judgment significantly superior. Therefore, it should be clearly recognized that a pilot is not only answerable in the public interest for his physical handling ability but is proportionate responsible also for the degree of judgment implied in the seeking and holding of a higher rating. In May, 1957 issue of SKYWAYS *we reported on the suspension of an "ATR" rating. The pilot appealed the CAB ruling and Mr. Morse reports herewith on the results of that appeal.*

The case of Hard vs. CAB, decided by the United States Court of Appeals for the Seventh Circuit, concerned a non-fatal accident at Owensboro, Kentucky involving an airplane piloted by Captain Hard. The CAB ordered his pilot rating suspended for six months. There was no finding by the Board that Hard had violated any rule, regulation or statute, or that he lacked flying ability. All he was found guilty of was, in the CAB's own words, "poor planning." The Board punished him nevertheless for the purpose, again in the CAB's own words, of providing "a sufficient deterrent against respondent (Hard) or other pilots taking similar risks."

Hard argued that it was error for the Board to try a case on a theory that he lacked qualifications for pilot rating and then impose deterrent sanction despite finding him qualified. In other words, he contended that the CAB could suspend his pilot rating only if it found him unqualified or lacking ability to fly aircraft.

The Court affirmed the CAB's order, declaring: "What Hard contends for would drive the Board into an area of sharp black and white, leaving *the gray zone* unprotected. . . . To be sure, the suspension of Hard, a qualified airman, at first appears as an arbitrary or unauthorized action but . . . . we would leave the order brought before us for scrutiny undisturbed because in our opinion the Board acted within permissible limits of administrative interpretation."

Air Turbulence

Aircraft accidents have occurred wherein the familiar motor vehicle principle of "contributory negligence" has played a part. But unlike automotive practice, a pilot enjoys an unusual official recognition of choice of action, similar to a ship captain. CAA makes quite clear that a 'clearance" is strictly permissive in nature and solely assures separation from other aircraft in flight with regard to certain set standards. Whether a pilot elects to operate his aircraft in relatively dangerous proximity to the wash of another aircraft on final approach, takeoff or taxiing, he is expected to apply judgment commensurate with the responsibilities of his rating. The second half of Mr. Morse's discussion confirms this expectation.

In the case of Otte vs. American Airlines, Inc., decided by the Court of Appeals of Ohio, the plaintiff held a private pilot's license issued by the CAB and owned a "Bellanca" four-seated airplane powered by a single 150 horsepower engine. The defendant, with direction from the control tower, was in the act of testing a DC-6 four-motored cargo plane for flight at the Cleveland Hopkins Airport. The defendant was doing what he had asked permission to do, "run up" at the place directed.

The plaintiff, with the means at hand to make his position known, and with full knowledge that the defendant's plane was standing on the runway with its motors running, turned directly into the path of the air turbulence created by the defendant's mechanics in revving the DC-motors as a necessary part of the "run up." The plaintiff's plane was damaged when its left wing hit the ground when tipped up from the air turbulence.

The Court held that the plaintiff could not recover because the creation of air turbulence by the revving was "a circumstance that could reasonably have been anticipated by the plaintiff."

Imprinted Flashlights Make Good Aviation Gifts

One mark of a "pro" pilot is the ever-present flashlight, a must in any cockpit or ramp office.

What better gift to give any pilot, mech or lineboss than one of RAY-O-VAC's line from pen-cell size (as distributed by SKYWAYS at NBAA-Phila) up to and including the Hunter Lantern, neatly imprinted with pilot's name, ship number or trademark? Their combined flashlight and continuity tester should be in every chart case or tool box. Also one of three sizes of Signal Wands for ramp use at home base or away.

CLASSIFIED ADVERTISING

Rates for Undisplayed Classified Advertising: 3 per word, minimum charge first 10 words $3. prepaid with order. Add 4 words if Box Num is included in lieu of advertiser's name and a dress.

AERONAUTICAL BOOKS

FREE CATALOG (1957) of leading aviati supplies including Zweng Books, Navigati Computers, Plotters, Log Books, etc. A maps and charts; Books of the Sea and A Nautical supplies and general technical boo on all subjects. Pan American Navigati Service, 12021-22 Ventura Blvd., N. Holl wood, Calif.

CHARTS & MAPS

AVIATION Charts now available from o new Chart Division. Agents for the Co and Geodetic Survey. Our service inclu Aeronautical Sectional, World Aeronautic Direction Finding Navigational Flight, e Distributors for New Plastic Relief Map the United States $45.00 express prepa (Free Catalog.) Pan American Navigati Service, 12021-22 Ventura Blvd., Hollywo Calif.

MISCELLANEOUS

LETTERS, NUMBERS AND FLAGS—Re self-adhering Vinyl REGALETTERS eli inate masking and spraying. Available 4", 12" and 20". American and Confeder flags, 8" and 13½". Also General Us Decals. Permanent colors. Meets CAA re lations. See your Distributor or: REGAL A CORP., 500 Fifth Ave., N. Y. C.

Radio Station "Airwatch" by Cop Serves Southern California City

When John H. Pace took over general managership of KABC-Ra last December, he found that Los An les listeners are wooed and pursued 26 AM, 22 FM and 7 TV stations. W could he do to be different in this hi ly competitive area? Where co listeners be served who weren't be served now?

After surveying the situation, he cided that the listeners on wheels, vast audience in cars, would appr ate faster traffic information, parti larly about the state of traffic on network of freeways in the area. He on the idea of a helicopter patroll the freeways and main arteries to g motorists the information they soug They cover disasters and other "h news stories to give the station man scoop.

It is a service unmatched by anyth else in the area. When Pace institu "Airwatch," it became the first s service by a station in the nation. expensive operation, it was a gam that has paid off handsomely. Spons ship followed the response of m thousands of listeners to the progr The press has been amazingly gener in its praise.

Not only is "Operation Airwatch" unusual business promotion, it is a a notable community service.

ERWIN-NEWMAN
Suspended Cantilever
HANGARS

'atent No. 2,687,102

Night view of L. B. Smith's new 80,000 square foot hangar at International Airport, Miami, Florida. The clear span area is 360 feet long by 80 feet deep. Vertical clearance of 22 feet.

Every square foot of hangar space— a square foot of usable space

Cantilever type construction means no obstructions of any nature to interrupt the clear span space, providing perfect housing for the maintenance and storage of aircraft. Enclosed space to the rear is spacious area for workshops, parts and office facilities.

This advance design is the result of 17 years experience in building several hundred hangars, of all sizes and types, which have withstood the most exacting load forces of every area—from the heaviest snow loads of the north and east, to the hurricane wind forces of the coast and the earthquake shock loads of the west.

Consult us before you build a hangar of any size, as this new modern cantilever type building can be constructed to your exact needs and in most cases will cost no more than older fixed span or limited clearance designs.

Call, write or wire us for information

Erwin Newman Co.

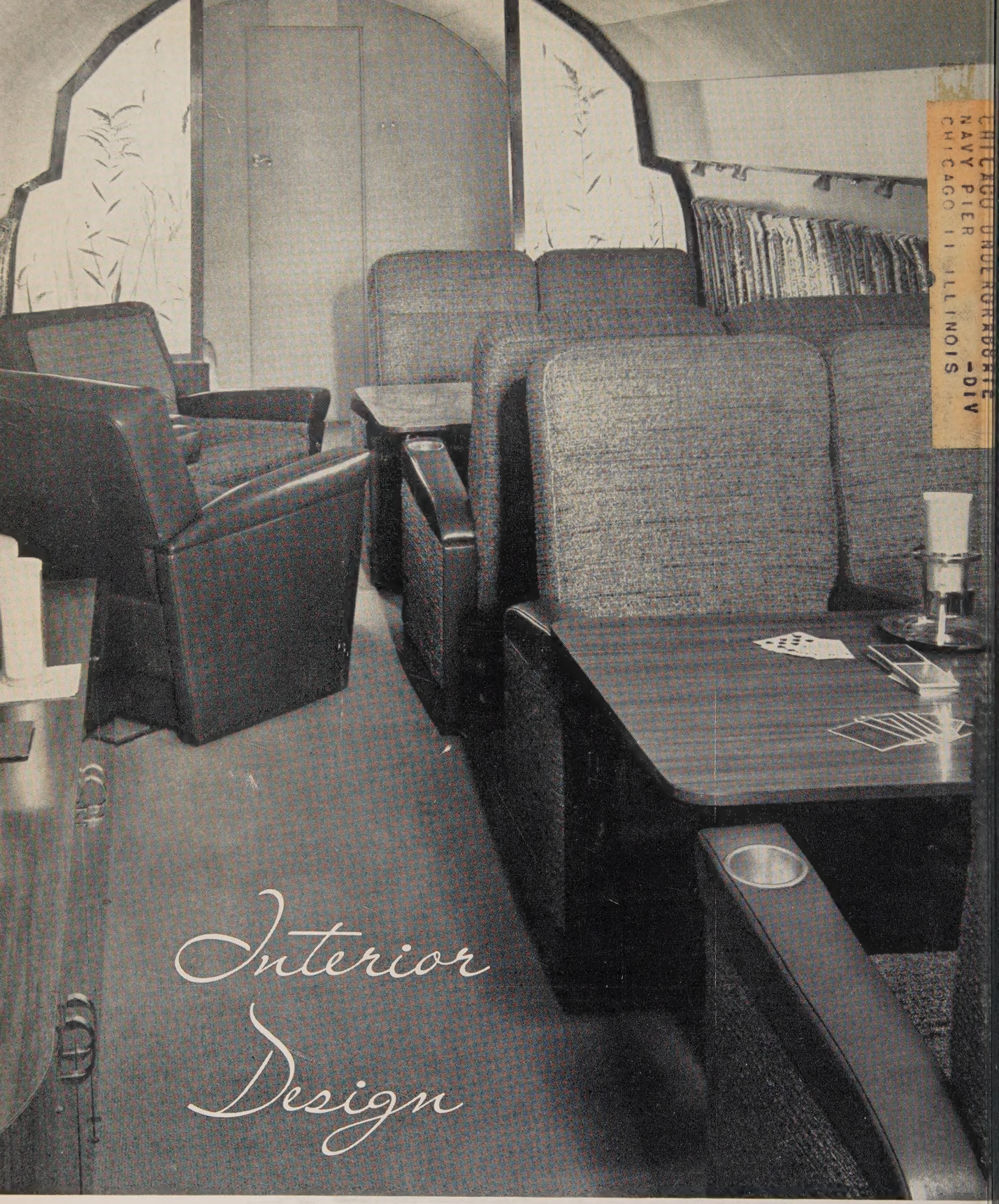
Designers and Constructors

le Cantilever
ble Cantilever
ng Cantilever

- Any Height
- Any Length
- Any Depth

Circle No. 15 on Reader Service Card

P. O. BOX 1308 • PHONE JAckson 4-8186 • HOUSTON, TEXAS



CHICAGO UNDERWRITERS
NAVY PIER -DIV
CHICAGO 11 ILLINOIS

. . . is an organized expression of beauty • it must never obtrude • successfully accomplished, it is the result of disciplined craftsmanship and serves, unerringly, the purpose for which it is intended • *when couched in master terms, interior design in aircraft invariably carries with it the Horton-Horton insignia . . .*

HORTON & HORTON

MEACHAM FIELD FORT WORTH

design • engineering • fabrication

Circle No. 14 on Reader Service Card